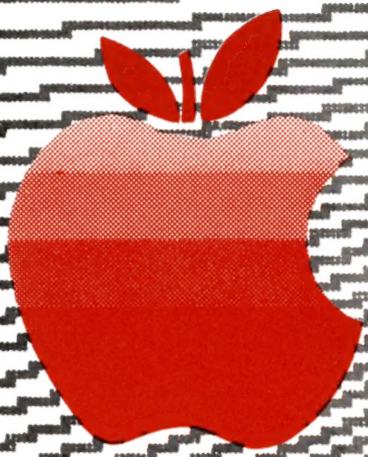

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THE MAGAZINE FOR YOU AND YOUR APPLE COMPUTER

ISSUE 2.6

FALL 1981

inside: Apple whiz kids • down with Base2 printer • descriptive statistics in Pascal • DOS 3.3 patches • an apocalyptic April Fool's program • software reviews including Z-Term, Tax Preparer, ASCII Express II, and CRAE • hardware reviews including CCS 7811B processor and Bell display board • articles, programs, book reviews, news, gossip, new products, and more good stuff for your Apple.

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Dear Software Designer:

Microcomputers, their peripherals, and software are a part of the most volatile industry in existence today.

Companies associated with this growing area come and go at a painful rate. Presently, good software is at a premium. The average computer owner is far more sophisticated than he was a year ago. He demands an ever increasing diet of faster high resolution games that can only be met by the best programmers. The day of the small businessman, who has the time to sweat through the debugging of his general ledger while on the line, is gone.

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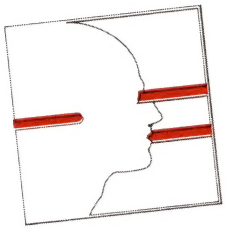

Advanced Operating Systems is a division of ITT and specifically related to Howard W. Sams & Co., Inc. (Sams Books). Our professional experience goes back to the birth of the microcomputer industry. Advanced Operating Systems benefits from the strength of ITT, one of the largest companies in the world, as well.

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Palmer T. Wolf
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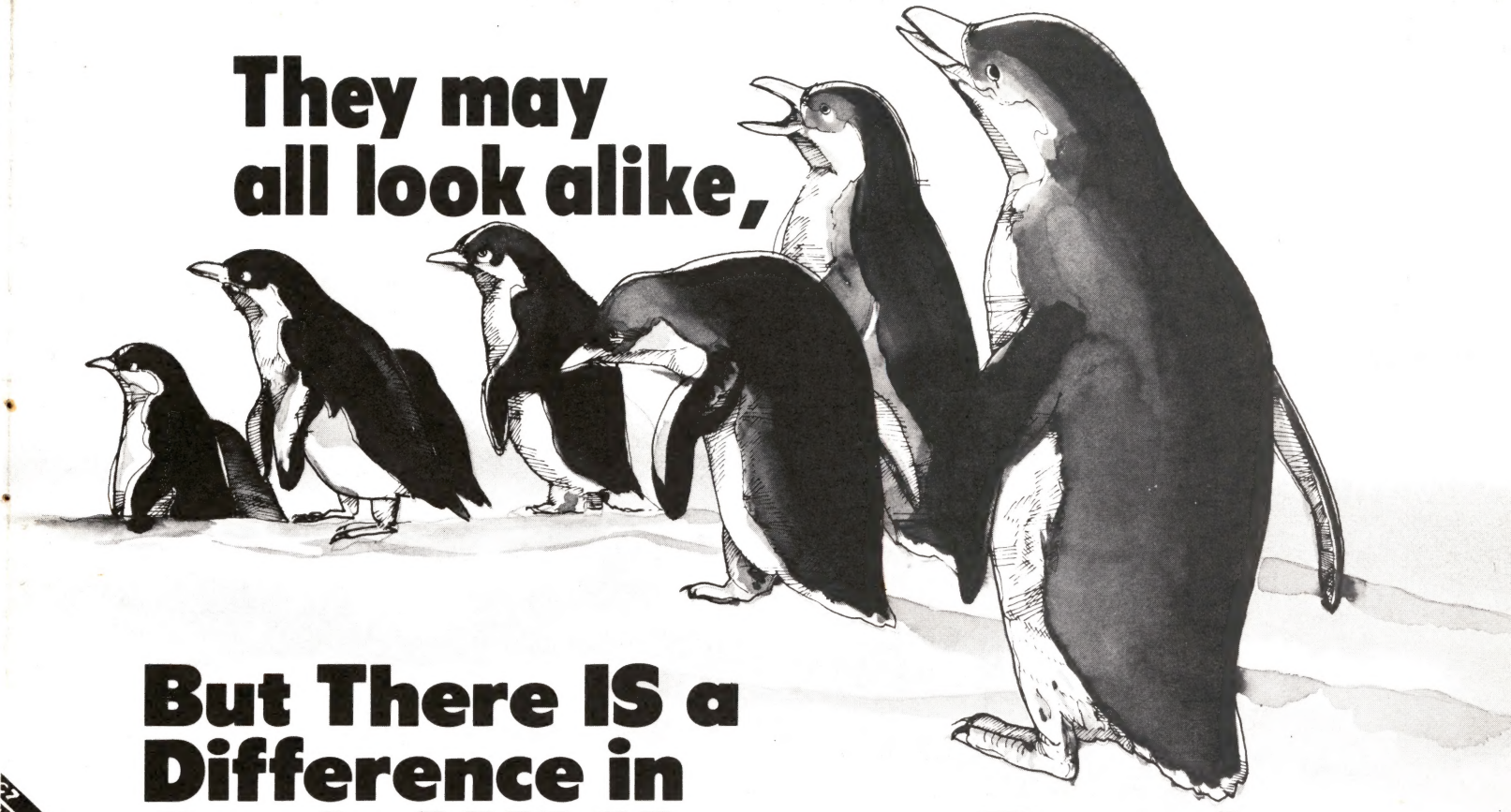

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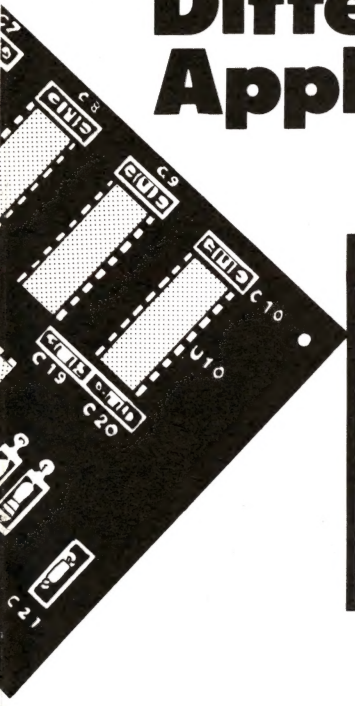

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ISSUE 2.6 FALL 1981

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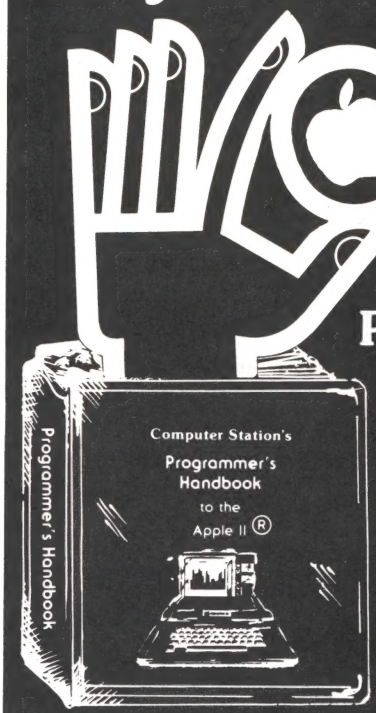

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APPLESAUCE, a general magazine, is devoted to the Apple microcomputer. It publishes articles, programs, software reviews, hardware reviews, tutorials, notes, news, letters, and even rumors and gossip. It is the magazine of the Original Apple Corps, located in Los Angeles.

Authors should send materials to me in, if at all possible, machine readable form, i.e., on diskette. Common editors, including (but not limited to) Apple Pie, Write-On, Applewriter, Prose, and EasyWriter, should be used. The editor you use should have features so that files can be uploaded to another machine. (Uncommon editors and word processors should be accompanied by documentation.) You should also include, if possible, a printed copy of your submission. And, of course, please print your name, phone number, and return address on everything you send. Short notes and letters, of course, need not be on diskette. New items can be telephoned in.

Companies and manufacturers should send their products for review to me, the editor. If requested, expensive materials will be returned. Otherwise, the reviewer retains the product he reviews.

Businessmen should understand that APPLESAUCE is a volunteer magazine and cannot afford to purchase their products (software, hardware, books, or whatever) for review. Note, for example, our low advertising rates! If a company wants its products reviewed in APPLESAUCE, then it will have to supply us with the product. This will not, of course, insure a favorable review. We will maintain our independence at all cost. Anyone feeling, however, that his product was not fairly and accurately reviewed can write a rebuttal.

Earl Rand
Editor

A MESSAGE TO MANUFACTURERS, COMPUTER STORES, AND SOFTWARE DEVELOPERS

When you're looking over this issue of APPLESAUCE, think about how we can help you and how you can help us. Yes, you SHOULD help us because clubs and publications like ours help sell Apple software and peripherals! The better the club and magazine the more Apple-things people will buy. You can specifically help

(1) By advertising your products in APPLESAUCE. Because we're non-profit, our rates are low! Send us your ads every two months.

(2) By sending us your press releases for publication in and products for review in APPLESAUCE. These are excellent ways to get your products before the Apple public. We do not have the funds to purchase materials for review, so if you think the readers of APPLESAUCE would like to know about your product, then don't wait for us to ask you for it, but send it to the editor as early as possible.

(3) By urging your engineers, programmers, documentors, and others to write articles and review products for APPLESAUCE. Employee visibility helps businesses.

(4) By subscribing to APPLESAUCE for yourself, for your staff, and for your best customers. A subscription makes a welcome gift!

(5) By joining the Original Apple Corps (if you're in the L. A. area) and by working to fulfill its goals.

Clubs like the OAC and their volunteer magazines like APPLESAUCE sell Apple-stuff. They need all the help businesses can give them! Ask yourself: "Has my business helped all it can?"

Earl Rand
Editor

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News and New Products

USING 6502 ASSEMBLY LANGUAGE

Randy Hyde turned over the editorship of APPLESAUCE in order to devote himself full time to Lazer Systems and to writing this book (title above). And he has written a book!!! As one of my friends would say, "It's dynamite!" The book is for real beginners. It's full of practical examples. I've only seen galleys, but it appears to around 300 pages long, nicely illustrated, and written in Randy's very readable style. Available from Datamost (19273 Kenya Street, Northridge, CA 91326; 213-366-7160, $20). We hope to have it reviewed in the next issue of APPLESAUCE.

OAC MEMBERS DO IT AGAIN!

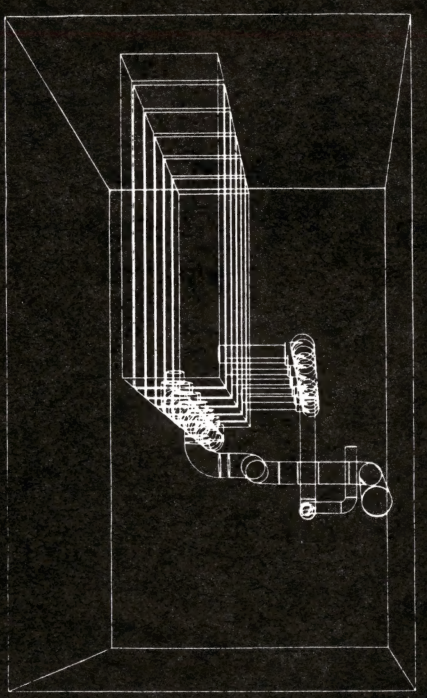
Ken Blanchard and John Uhrspringer (J&K Products, 20202 Cohasset #16, Canoga Park, CA 91306), both staunch Original Apple Corps member, have designed and are marketing an analog disk drive board that will (1) save you money, (2) let you access 40 tracks, (3) reduce track access time, (4) give you a choice of drive manufacturer, and much more. If you're in the market for a second drive, then take my advice: see them first!

DTACK

DTACK GROUNDED is a newsletter published by Digital Acoustics (1415 E. McFadden St. F, Santa Ana, CA 92705). They are coming out with a Motorola 68000 board. Eventually, the Apple will take care of I/O and the 68000 will be the main processor. They publish a newsletter ($15 for 6 issues). It looks to me like the hottest "thing" (after all, it's not a "peripheral") on the micro scene since Revision 0. Send them an SASE for a sample issue and general news about DTACK. Join the next generation of microcomputing!

32 BASIC PROGRAMS FOR THE APPLE COMPUTER

Tom Rugg and Phil Feldman have provided a model of what a general software book should contain. The book (titled above and published by Dilithium Press, Beaverton, Oregon) presents eack program in the context of its purpose, how to use it, sample run, easy changes, main routines and variables, and suggested projects. If you're learning Applesoft and if you learn best by example (rather than by rule and exercise), then this is the book for you. Also see the review of MICRO 6502, p. 30, in APPLESAUCE 2.5. Rugg



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                              JSR NEXT
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and Feldman's book contains many old favorites, e.g., biorhythm, checkbook, loans, mileage, curve, pi, and powers. And it also includes some neat games, graphics, and education programs. In all, 32 worthwhile programs.

BYE-BYE DOUBLE VISION

The Computer Stop has upgraded and renamed their 80-column Double Vision Card. It's now OMNI-VISION. The new board is 100% compatible with DV and the price is too, remaining at $295, making it the least expensive of the 80-column cards. The character set, now 5X7 is much improved as is the layout of the card. Pins have been added to support a light pen, graphics, and other goodies.

ROMULATOR

Videx (897 NW Grant Ave, Corvallis, OR 97330) as designed a board that allows advanced programers to replace motherboard ROMs with RAM. This means that you can store your own foreign language character set, keep an Applesoft editor online, and whatever else might fit into 2.25K RAM.

EASYWRITER—THE PROFESSIONAL SYSTEM

The people at Information Unlimited Software (281 Arlington Ave, Berkeley, CA 94707; 415-525-9452) do not let the grass grow under their feet. They're out with Version 4 of EasyWriter. Only last January did Tricia Jordan compare it with PIE (see APPLESAUCE 2.3). She found it excellent then! Maybe I can get her to review this version to. But, for now, I can report a few of its many new features: it supports four popular 80-column boards (in fact, you must use one); it has additional printer functions (e.g., proportional and expanded fonts); and it provides more storage, faster entry, and faster error recovery. But one thing it has retained: its ease of use! And did you know? IBM contracted IUS to put EasyWriter on their new micro! That recommends it!

GRAPHICS SOFTWARE FOR MICROCOMPUTERS

Dr. Bernard J. Korites' new (title above) is the most complete and thorough introduction to graphics I've seen. And it's all self-teaching and programmed for the Apple!!! It covers, to mention only a few topics: interactive graphics, clipping, rotation, hidden line removal, shading, and perspective. OAC members have told me that the book is excellent. The book costs $20 and the accompanying diskette $19. (Kern Publications, 190 Duck Hill Road, Duxbury, MASS 02332; 617-934-0445)

COBOL

CIS-COBOL for an Apple with a A-80 Softcard is purchasable from Micro-Focus, 1601 Civic Center Dr, Santa Clara, CA 95050, for somewhat over $900. APPLESAUCE has never reviewed such expensive software before, but we may have one in the next issue. We're getting up in the world. Tell them you saw it in APPLESAUCE!

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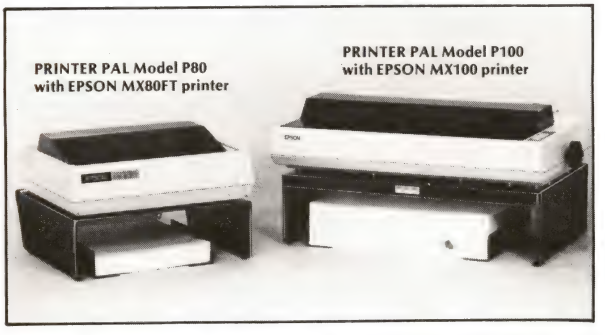

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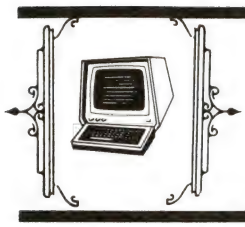

Articles

The Third Wave: Whiz-Kids Make a Revolution in Computers

Kay Mills

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Electronics is to the Santa Clara Valley what wine is to the Napa Valley and water is to the San Fernando Valley: that without which there would be no freeway exit.

In the Silicon Valley, as that semiconductor strip from Palo Alto along the way to San Jose is known, there have already been several generations of electronics entrepreneurs changing the speed with which industry and government can do their business. First, there were William Hewlett, David Packard, and Russel and Sigurd Varian, educated at Stanford and founders of the valley's original advanced-technology companies.

Then came people like Robert Noyce, who helped develop the semiconductor, which is a basic unit of computers because of the way it conducts electricity. A founder of Fairchild Semiconductor, Noyce later set up Intel, where he and his associates made possible miniaturizing electronic devices by figuring out how to place thousands of transistors on a sliver of silicon, creating what is known in the trade as a "microprocessor."

Now there is a third wave in this technological tide—the personal computer folks—led by two young men brought up in the valley, Steve Jobs and Steve Wozniak of Apple Computer in Cupertino. They founded a company which, with Radio Shack and Atari, is changing the concept of what individuals can do with computers. To get where they are, Jobs, 26, and Wozniak, 30, demonstrated the take-a-risk quality that helped put their valley on the industrial map.

After spending one and one-half years at Reed College, Jobs took a job at Atari making electronic games to earn some money to travel. Wozniak—Woz, for short—worked on hand-held calculators at Hewlett-Packard. The two wanted a computer, but couldn't afford one. So they spent six months designing one.

"We sort of liberated some parts and we built one and it worked," says Jobs, the more outgoing of the pair.

Thus, Apple Computer was born in the proverbial garage in 1976. Friends of Jobs and Wozniak wanted computers, too. "It took about 50 or 60 hours to build one because they were all hand-wired meticulously," Jobs recalls. "We were spending all our free time helping our friends build computers. This had to stop.

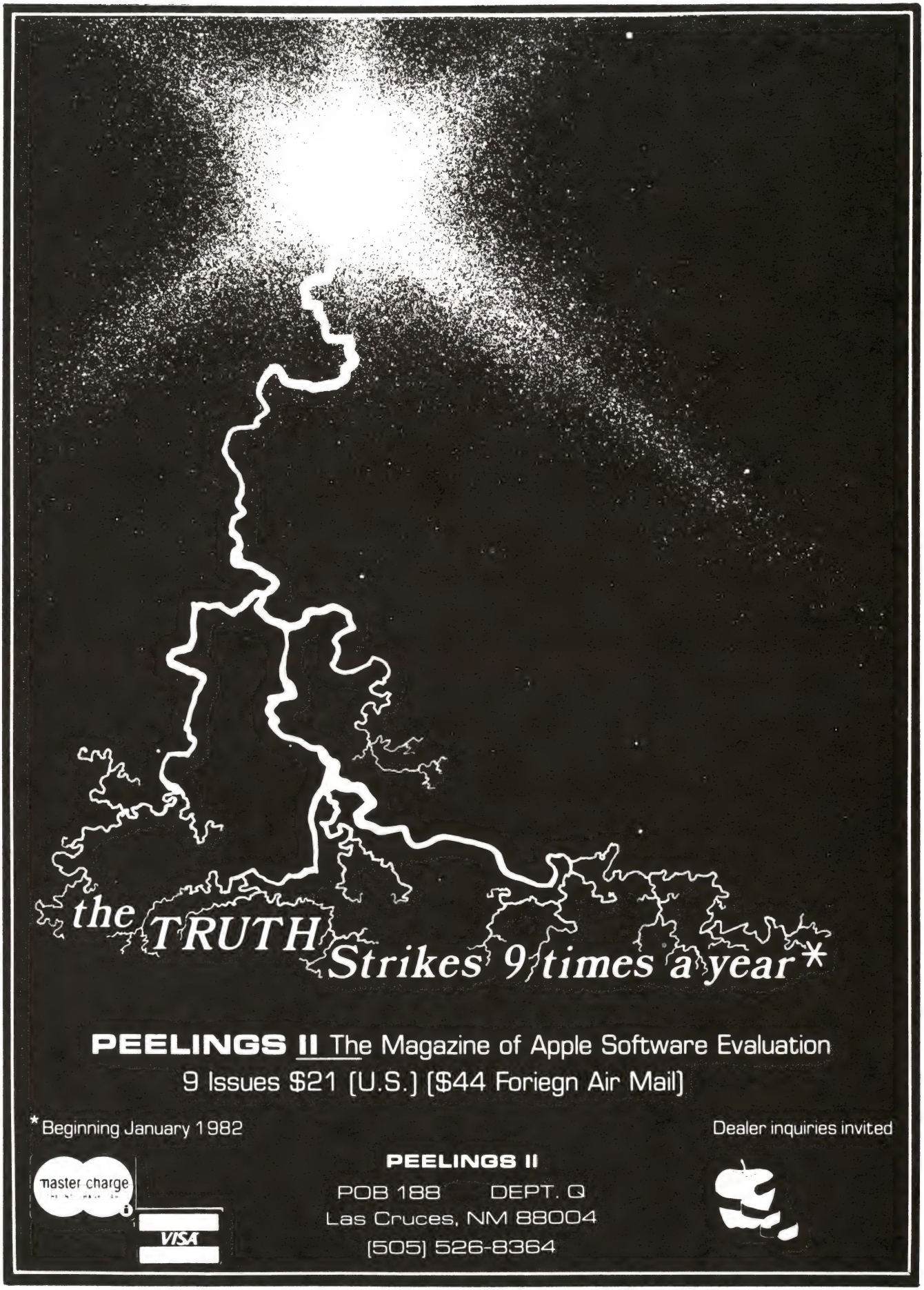
"I sold my VW bus and Woz sold his Hewlett-Packard 65 calculator and we got $1300 together and we paid a friend of mine to lay out a printed circuit, cutting the time down from 60 hours to 10 hours. We were going to make the computers for about $25 and sell them for $50, and if we sold 100, we'd have $2,500 profit and I could buy another car and he could buy another calculator and all our friends would have computers."

"I walked into the Byte Shop—the first computer store in our area—and the owner said he'd like 50. Of course, we saw dollar signs. But he wanted them fully assembled and tested. I spent the next several days at the electronics distributors in the area and convinced them to give us about $20,000 worth of parts on net 30 days' credit—on thin air. We had no assets whatsoever. They took a gamble on us."

"So we got the parts, we built the computers, we tested them, we delivered them to the Byte Shop and we got paid—cash, C.O.D.—and we paid off the distributors in 29 days. So that's how we got started."

"Gradually we just got into business. Before we did all this, we went to both Atari and Hewlett-Packard and tried to convince them that we were really onto something. But Atari was off in its own direction, doing games, and Hewlett-Packard made it clear that the fact that neither of us had degrees meant we probably didn't know that much."

Jobs and Wozniak knew what they didn't know, and brought in big-league managerial talent. Jobs is now the company's Chairman of the Board and Wozniak is Executive Vice President. The only



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question is whether Apple can handle its rapid growth. Last year, it had sales of $117 million; the figure will probably more than double this year. In units sold, Apple stands second behind Tandy Corp., which owns the Radio Shack stores and sells its computers through them; Apple leads in dollar sales. A person can start an Apple system for about $1,500 but the average price is $2,500.

Why "Apple"?

Jobs, a bearded, whole-wheat sort of fellow who favors jeans over business suits, liked apples. The word apple, he felt, had a crisp sound, one that was unique among the technological titles of most of the companies that abound in places like Cupertino, Sunnyvale and Mountain View.

Just as there have been several generations of electronics entrepreneurs, so there have been several generations of computers, Jobs said, explaining by comparing computers to the development of the electric motor.

"When it was first invented, it was only possible to build a really large motor and therefore you could only cost-justify it for very large tasks. Then some really smart guy realized you could attach a shaft to it all the way down a factory and bring the power to maybe 10 or 20 individual work stations, thereby cost-justifying that one electric motor by sharing its horsepower with a bunch of medium-sized tasks.

"But the real proliferation of electric motors came with the invention of the fractional-horsepower electric motor. You could bring the horsepower directly to where it was needed. You don't think of your washing machine as an electric motor, but it is. . .

"now if you look at computers, you find a very close parallel. The first computer—ENIAC—was designed and built to do very large tasks. In the 1960s, there was the invention of time-sharing—the ability to take a very large computer and share it among maybe 10, 20, 30, 40 terminals.

"We think we invented the first 'fractional-horsepower computer' where you cost-justify it on a personal level for smaller applications and you can bring the computation power directly to where it's needed." For example, his company's latest product, the Apple III, helps develop financial forecasts, sort files, process letters, create engineering models or write scripts.

Personal computers enhance people's mental efficiency the way bicycles enable them to use physical energy to greater yield. "We're working on a 21st-Century bicycle."

Will this "personal" technology be accepted?

"Machines are pretty much a part of American life, so the receptivity is quite high," says Jobs. "You probably haven't used carbon paper or a mimeograph machine in a while and yet the Xerox machine is only 20 years old." Hand-held calculators have had similar acceptance and impact. "In 1978, the world's largest manufacturer of slide-rules stopped making them entirely because the market went away.

"I think the personal computer is going to have a more profound effect than either the Xerox machine or the calculator. It's one generation off at most.

"The computer very much increases your sphere of thinking in the same way the automobile does your sphere of transportation. It's not that once you start using some of these tools, you take off at 2 in the afternoon and go play golf every day. The computer amplifies any efforts you make so that you go much further."

Isn't there a danger of isolation as home computers come into general use?

Quite the opposite, Jobs thinks. "The pinnacle of financial achievement in this country is to own your own home—or at least it used to be. And yet we spend very little of our waking hours there For some segments of the population, the advances in the products we're working on are going to make it possible for them to work at home two or three days a week, and be a lot more productive and come to the office maybe two days a week.

"I think personal computers will promote much more of a sense of individualism, which is not the same as isolation. It will help someone who is torn between loving his or her work and loving the family."

Jobs' enthusiasm for computers stems in part from his upbringing. He and Wozniak were nurtured by the Silicon Valley's entrepreneurial spirit. "Our heroes when we grew up were Bill Hewlett and Dave Packard."

They were also of a generation that started early questioning the usual way of doing things. Jobs, for example, was just beginning school when the Cuban missile crisis broke. "I didn't sleep for about a week because I figured if I went to sleep, I might never wake up again." Then John Kennedy was killed. The Vietnam War raged while Jobs was a teenager.

"A lot of ideas that come out of that time focused on really thinking for yourself, seeing the world through your own eyes and not being trapped by the ways you were taught to see things by other people."

Jobs, a very successful young man, sees business through his own eyes now. "When we first started Apple, I was very apprehensive about getting into business. I think business is probably the best kept secret in the world. It's viewed on the outside mostly negatively and it really is a wonderful thing. It's like a razor's edge."

Kay Mills is an editorial writer for the Los Angeles Times.

THE BASE2 PRINTER: AN OWNER SPEAKS UP

Richard R. Dodd

Several months ago I ordered a Base2 printer through a computer store located in Los Angeles. I had received a specification sheet from the manufacturer, and I was impressed with the capabilities that were claimed for this printer. When the phone call came informing me that the printer was in, I hurried down with a sense of anticipation to pick up my printer. I was sold the printer, an Apple parallel interface, and a fifty pin connecter.

When I got home and unpacked, I noticed two disquieting things. First, the printer was not new. It was evident from the condition of several burred Phillips head screws, one screw that was only partly screwed in , and chipped paint that this machine was not brand new, even if it had come in a sealed carton. Also, the name plate was not stamped to indicate that it had the latest options. The other disturbing thing was that there was no reference manual provided.

I returned the printer to the shop, and it was replaced by a second machine that had been received at the same time. It had serial number 2316, while the first printer was about 1500. This verified my conviction that the first printer had been kicking around for some time.

The problem of the reference manual was solved by driving across town and borrowing a manual to have it copied. Then the problems really started. The manual informed me that my fifty pin connector would work with an RS232, but not with my parallel interface. What I needed was a thirty-six pin connector. The store did not have one, and I could not find one locally. It seemed that the fastest way to get one would be through Base2. That was a mistake. They would not sell the connector alone, but only a complete wire harness.

One month and many, many, many phone calls later, the connection arrived. I happily connected everything up, and attempted a trial run on my printer. Guess what? It didn't work. Back to the store. We checked the interface junction configuration block wiring: OK. The dip switch settings on the printer were OK, but no response from the printer. The Apple would just hang with a PR#1 command. A few days later, and another call from the store. The printer was now working, but they didn't know how they had accomplished this. It had just decided to start working.

Back home again, I was almost afraid to plug it in for fear of another disappointment. However, imagine my surprise when a PR#1 resulted in a "Gr'umph!" sound from the direction of the printer. My printer worked! It left big ink splotches on the pages, and occasionally tried to crowd three lines in the space for two lines— or worse yet, two lines into one line—but at least I could print out programs for study. A word processor it was not.

A few weeks of this limited use, and I decided to send it back before the warranty period was up. It seems that Base2 was working on a one month turnaround schedule, but finally, many, many phone calls later, I made another trip to the store to pick up my printer again. This time when I got it home and plugged it in, the indicator light wouldn't light and there wasn't any response to the switch. A quick meter check inside showed power to the transformer, but I did notice from the color coding of the transformer leads that they did not agree with the schematic in the manual. I didn't want to get into that, so back to the factory once more.

This time, Base2 outdid themselves and returned it within ten days. This time, the light went on, and after resetting the dip switch, the printer let out with a welcome "Gr'umph!" when I hit PR#1.

Am I happy? Not really. Although the ink blots are gone, so is some of the ink: the bottom halves of the last two or three characters in a line sometimes don't get printed, and the overall print density is too light

for easy reading. Could it be that Base2 removed my drippy ink cartridge, and replaced it with a used one? It still forgets to line feed occasionaly, or advances half a line sometimes. It also doesn't seem to want to respond to certain software commands.

Should I send it back again? I don't know if I dare: it might come back in even worse condition!

Editor's note: Mr. Dodd's complaints seem well justified, as his printer's output is often hardly legible. Both the Corps' librarian and I own Base2 printers, and we have found them far from satisfactory. I also own an Anadex 8500 and a Comprint, both of which have given much better service than my Base2 has. We have also consistenly heard good things about the Epson MX-80.

PLAIN TALK ABOUT "COPY PROTECTION"

A lot has been said and written about copy protection and software piracy since Omega made Locksmith available to Apple II users earlier this year. We have been accused of encouraging illegal copying of copyrighted software. Software publishers have threatened to boycott magazines which carry our advertising, and the pros and cons of Locksmith and copy protection devices have been debated in Apple forums throughout the country. But, we at Omega haven't really told you, the Apple user, our side of the story.

Locksmith was originally developed as an intellectual exercise by an Apple user over a year ago. And we suspect that sufficient information about the Apple DOS and the way information is stored on a disk has been long available to the general public, so that ANYONE who was REALLY interested, and who wished to spend a LOT of time, could have written a program that does many of the things that Locksmith does. Similarly, there is really no "secret" to writing data base programs, adventure programs, or even spread sheet programs. The literature is there if you want to look for it. But it takes a lot of hard work to develop any software package that works in all cases, that is crashproof, that interfaces easily with a non-experienced computer user, and that is well documented. A LOT of hard work.

But even before Locksmith was available to us, we, as Apple users, recognized a definite problem with the software we were buying and using. Much of it worked well. But it was very aggravating to not be able to make a backup copy of certain "copy protected" programs. Most software pubishers didn't supply backups of their programs, and those that had any policy required signing opressive agreements or paying questionably high yearly fees for presumed, but not guaranteed, updates. Among those who did not offer back-up was one who 'sold' us a new copy (when we returned our crashed disk). Although they advertised the importance of having their program running every, day they made us wait up to 6 weeks to get the replacement. Most vendors just ignored the problem. We, as consumers, were simply taken advantage of. In many cases we relied so much on a particular program, that it became very costly to have to wait weeks or more to replace a blown disk. Software publishers were just not responsive to the users problems caused by "copy protection".

When we first became aware of Locksmith, we investigated the state of the law, and discovered that no one knew whether the owner of a program could copy it for backup. And for quite a while we debated whether we should market Locksmith.

On December 12, 1980, a change was made to the Copyright Act which resolved these questions. It is now the law of the United States that the existence of a copyright notice on a computer program does NOT make it illegal for the legitimate owner of that program to copy it for archival purposes. Backups are now clearly legal. (Of course, when you sell your purchased program, you must destroy the backups you have made). Only after such use clearly became legal did we decide to sell Locksmith.

Now with the new copyright law, which for the first time gave software publishers clear rights that were enforceable in court, but which also gave "backup" rights to software purchasers, and with the demonstration that Locksmith could and would provide back-up for the user, we assumed that software publishers would drop their copy protection schemes and educate the public as to their rights and responsibilities. Even the user of hardware protection that gives copy-ability to the software would be acceptable. Unfortunately, their response has been to pressure magazine publishers into refusing our advertising, and to invent new copy protection schemes.

Well, the word about Locksmith was impossible to stop. We couldn't advertise, but we have sold a gratifyingly large number of programs. As to new copy protection schemes, the new Locksmith (version 4.0) will adjust to them, and copy virtually anything protected that way. But please. For us, for yourselves, and for the entire industry, use Locksmith only for its intended legal purposes.

The new version is more than just the best copy program available. There are also four additional utilities included. A disk speed program, a degauasser, a nibble editor and a media surface analyzer are included. And we stand behind our products. Our customer service department is available (and anxious) to help with problems.

Locksmith 4.0 is available from us, or your local dealer. Visa and Mastercard users call Toll Free 1-800-835-2246. Kansas residents call 1-800-362-2421 or send $99.95. (Registered owners of prior versions can obtain an update for only $20. If you haven't received a letter from us, please call.)

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The Source Apple Users Group: New Developments

Joel L. Amromin

The Source Apple Users Group (SAUG) is coming right along. Our library of public domain software has been slowly growing. We have added more programs to the BASIC library. And we have put a very nice lower case display mod for the new Pascal 1.1 revision in the Pascal library.

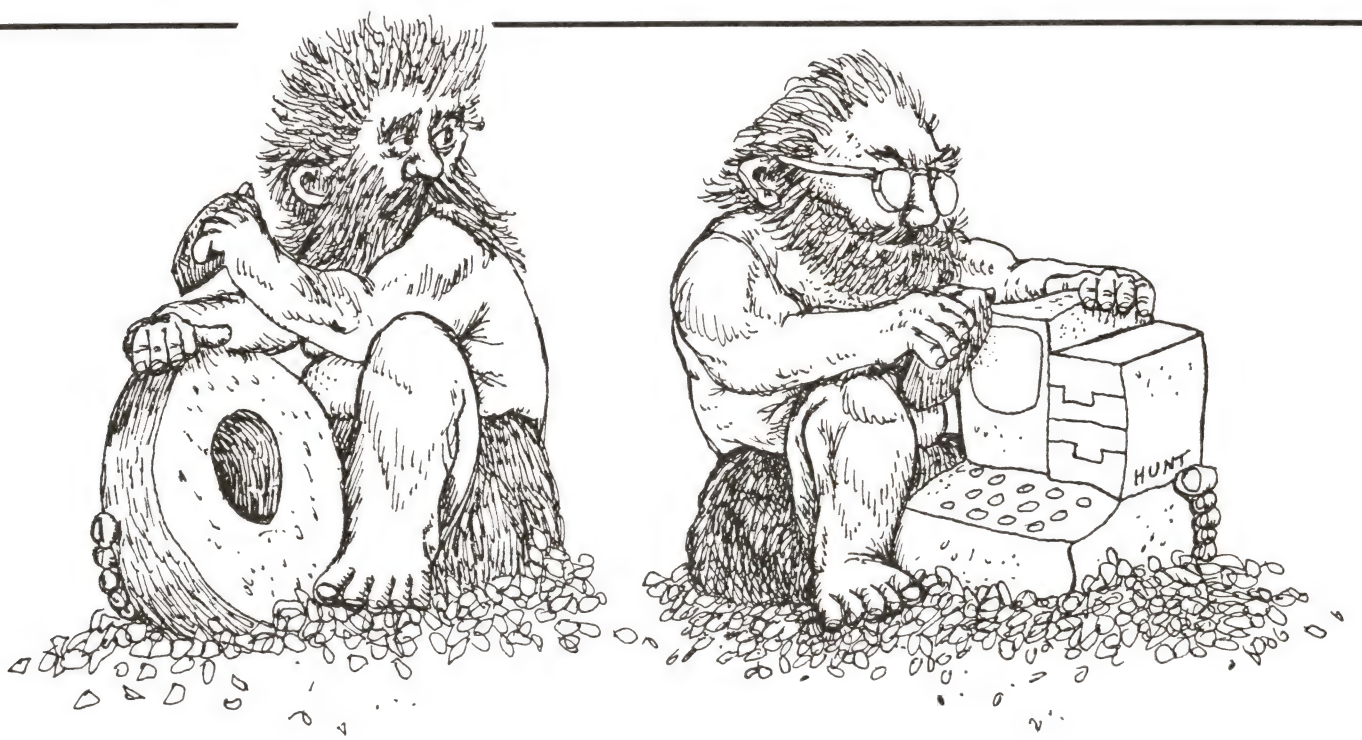
We also have two new SAUG programs running. One indicates which SAUG members are online. The other is a special DISEARCH program that scans the roster by state, special intersts, or both. It also provides the phone numbers of bulletin boards run by SAUG members.

Several new developments have taken place on the Source. First, three new Prime computers have been added to the system, doubling the capacity of the whole operation. Some accounts have been moved from the old systems 10 and 11 onto system 12. Two of the new systems will be used, as I understand it, for data acquisition. This will free up the other three for a more important function — being available for use by customers.

Another big change is that the ONLINE command has been modified. The ONLINE command displays a list of everyone who is online to the Source at any given time. This is indispensable if you want to find someone with whom to chat. One of the big complaints against the Source has been that ONLINE only tells you who is on the same system you are logged onto (either 10, 11, or 12). This can be frustrating if you have a system 11 account and your friends are on system 10. This limit was necessary because there weren't enough hardware facilities to allow frequent chatting between systems, even though you could chat across systems if you knew who was there. The new computers have eliminated that restriction. The new ONLINE lists everybody who is online on any system.

Finally, the new computers are making the Source much faster than before. The system used to bog down from about 3:00 P.M. to 10:00 P.M. Pacific time because there were so many users signed on. The new computers are helping to speed up the slow response time.

The Source has also added some new features. These include marketing of old radio show tapes, a barter system, a computer- based employment network, a home medical advisory service, and a financial modeling system.



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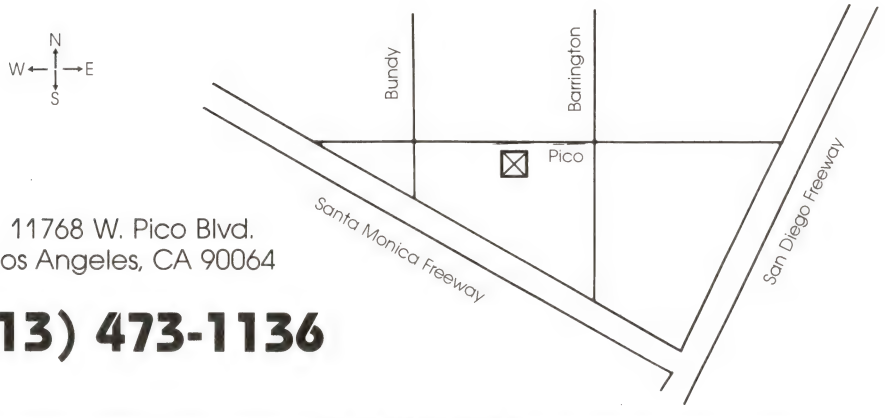

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Applesoft Check If a File Exists

David A. Edwards

Have you ever written a program in Applesoft which needs to be able to find out if a file already exists on disk? I have, and I was disappointed to find that there was no direct way to do this. The routine below was the final result after several tries. I was hampered by the way "ONERR GOTO" and "RESUME" work, and this was the easiest way I could find to achieve my objective. If anyone has a better way of doing this, I'd be interested in hearing about it.

The sequence needed to use this subroutine is as follows: assign the name of the file to be checked to the variable "FILE$." The variable "EXISTS" will return set to 0 if the file did not exist, and to 1 if it did. Thus upon return from the routine, you might say "IF EXISTS THEN . . ." Also, the variable "ERR" will be nonzero if there was any kind of unexpected error, so that your program can handle that eventuality in whatever way is necessary.

```
4800  REM --TEST IF FILE
      EXISTS--
4810  REM       TRY TO RENAME
      THE FILE ...
4820  REM       IF ERROR,
      MEANS DOESN'T ALREADY EXIST
4825  REM BY DAVID A. EDWARDS
4827  D$ = CHR$ (4)
4830  EXISTS = 1
4835  ERR = 0
4840  ONERR  GOTO 5000
4850  DCOM$ = "RENAME"
4860  PRINT D$;DCOM$;"
      ";FILE$;
4870  IF DCOM$ = "RENAME"
      THEN  PRINT ", ";FILE$;
4880  PRINT
4890  REM (CANCEL ONERR
      BRANCH)
4900  POKE 216,0
4910  RETURN
4999  REM

5000  REM --ROUTINE TO CATCH
      THE RENAME ERROR FROM
5004  REM   TEST SUBROUTINE
      AT LOCATION 4870
5010  ETYPE =  PEEK (222)
5020  IF ETYPE = 6 THEN  GOTO  5050
5021  IF ETYPE <  > 11 THEN 5025
5022  INVERSE : PRINT : PRINT
      " INVALID NAME ": NORMAL
5023  ERR = 1: RESUME
5025  IF ETYPE <  > 10 THEN
      5030
5026  INVERSE : PRINT : PRINT
      " FILE IS LOCKED ": NORMAL
5027  ERR = 1: RESUME
5030  PRINT : PRINT : INVERSE

5035  PRINT "UNEXPECTED DOS
      ERROR
      FROM LOCATION ";256 *
      PEEK (219) + PEEK (218)
5040  PRINT "ERROR TYPE =
      ";ETYPE
5045  NORMAL : END
5050  EXISTS = 0
5055  DCOM$ = "CLOSE"
5060  RESUME : REM RETURN TO
      POINT OF ERROR
```

Descriptive Statistics in Pascal

Philip B. Ender

Here is a program that computes a number of descriptive statistics. The program is written in Apple UCSD Pascal and may have some features of interest to Pascal programmers who are not particularly interested in statistics.

The data are not input directly into the program from the keyboard, but are first entered into a text file using the Pascal editor. This method allows you to edit and correct the data set easily. Table 1 shows how the data are formatted in the text file. Each value is separated by a comma from the next, and the last value is followed by an asterisk.

The results can be output to any one of several destinations. Replying 'CONSOLE:' to the prompt sends the results to the screen. A response of 'PRINTER:' will route the output to the printer. The results can even be stored in a text file by responding with the file volume and name. Table 2 shows the reslults of a sample run. The following abbreviations were used:

VAR	Variance
SD	Standard Deviation
SE	Standard Error of the Mean
CV	Coefficient of Variation
B1,A3	Measures of Skewness
2,A4	Measures of Kurtosis
Z-score	Standard Score

There are basically two approaches to writing statistics programs. One approach is to read in each case, compute the necessary summary statistics, and then discard that case. An alternative approach is to read all the cases into memory and then compute the results. Because this program computes both the median and standard scores, the second approach was followed. The maximun number of cases handled by this program is currently 600. This value may be changed by changing the constant NR. I'm not sure how far this can be increased. Good luck in using this descriptive statistics program.

```
    DESCRIPTIVE STATISTICS PROGRAM
         BY: PHILIP B. ENDER
              APRIL 1980
             SAMPLE RUN


             21,27,
             20,
             31,23,29*

                                   MOMENTS
                    M3 =      6.759     M4 =      403.654
                    B1 =      0.010     A3 =        0.098
                    B2, A4 =      1.429

  N   =      6
MIN   =      20.000     MAX     =      31.000

MEAN =      25.167     MEDIAN =      25.000

UNBIASED ESTIMATES OF VARIABILITY
VAR =      20.167     SD =       4.491
SE =        1.833     CV =      17.844
  BIASED ESTIMATES OF VARIABILITY
VAR =      16.806     SD =       4.099
SE =        1.674     CV =      16.289

                    RAW-SCORE       Z-SCORE
                1     20.000        -1.151
                2     21.000        -0.928
                3     23.000        -0.482
                4     27.000         0.408
                5     29.000         0.854
                6     31.000         1.299
```

```
PROGRAM DESCRIPTIVE;
USES TRANSCEND;

CONST NR=600; SP='     ';
      W=10;   D=3;

TYPE  MAT=ARRAY[1..NR,1..2] OF REAL;
      (* NO MORE THAN 600 CASES ALLOWED     *)

VAR                     FO,FIN:INTERACTIVE;
               DSO,DSIN,TITLE:STRING;
                       SCRNFILE:BOOLEAN;
     S1,N1,XT,MEAN,B1,B2,A3:REAL;
     S2,S3,S4,UVAR,USD,UNSE:REAL;
   TOP,UCV,BVAR,BSD,BSE,BCV:REAL;
       MED,MIN,MAX,N3,M3,M4:REAL;
                          I,N:INTEGER;
                      CH,SDC:CHAR;
                           X:MAT;

FUNCTION P(X:REAL;Y:INTEGER):REAL;
(* COMPUTE INTEGER POWERS OF REALS *)
VAR I:INTEGER; Z:REAL;
BEGIN
 Z:=1.0;
 FOR I:=1 TO Y DO Z:=Z*X;
 P:=Z
END;

PROCEDURE INPUT;
BEGIN
  WRITELN; WRITELN;
  WRITE('Enter Input File: ');
  READLN(DSIN);
  WRITELN;
  IF POS('.TEXT',DSIN)=0 THEN
    DSIN:=CONCAT(DSIN,'.TEXT');
  WRITE('Enter Title: ');
  READLN(TITLE);WRITELN(FO);
  WRITE('DESTINATION: ');
  READLN(DSO);
  IF POS(':',DSO)=0 THEN
    DSO:=CONCAT(DSO,':');
  IF (DSO='CONSOLE:') OR
     (DSO='#1:') THEN SCRNFILE:=TRUE
                 ELSE SCRNFILE:=FALSE;
  CLOSE(FO);
  REWRITE(FO,DSO);
  RESET(FIN,DSIN)
END;

PROCEDURE HEADING;
BEGIN
 WRITELN(FO,CHR(12));
 WRITELN(FO,SP,
     'DESCRIPTIVE STATISTICS PROGRAM');
```

```
 WRITELN(FO,SP,
     '      BY: PHILIP B. ENDER');
 WRITELN(FO,SP,
     '           APRIL 1980');
 WRITELN(FO,TITLE);
 WRITELN(FO)
END;

PROCEDURE INITIALIZE;
BEGIN
  TITLE:='';
  N:=0;     N1:=0.0; S1:=0.0;
  S2:=0.0; S3:=0.0; S4:=0.0
END;

PROCEDURE MEDIAN;

PROCEDURE SORT(L,R:INTEGER);
(* USES QUICKSORT METHOD FROM        *)
(* 'ALGORITHMS + DATA STRUCTURES =  *)
(* PROGRAMS' BY NICKLAUS WIRTH       *)
VAR I,J:INTEGER;
    W,Z:REAL;

BEGIN (* PROC SORT *)
  I:=L; J:=R; Z:=X[(L+R) DIV 2,1];
  REPEAT
   WHILE X[I,1] < Z DO I:=I+1;
   WHILE Z < X[J,1] DO J:=J-1;
   IF I<=J THEN
   BEGIN
    W:=X[I,1]; X[I,1]:=X[J,1];
    X[J,1]:=W; I:=I+1; J:=J-1
   END
  UNTIL I>J;
  IF L<J THEN SORT(L,J);
  IF I<R THEN SORT(I,R)
END; (* PROC SORT *)

BEGIN (* PROC MEDIAN *)
 SORT(1,N);
 I:= (N+1) DIV 2;
 IF ODD(N) THEN MED:=X[I,1]
       ELSE MED:=(X[I,1]+X[I+1,1])/2.0
END; (* PROC MEDIAN *)
```


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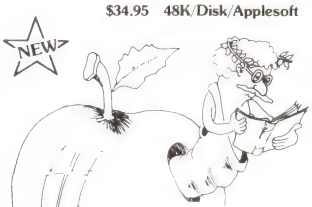

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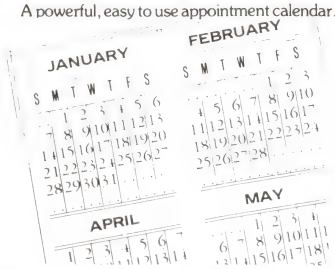

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```
PROCEDURE MORECOMP;
BEGIN
  MEAN:=S1/N1;    N3:=P(N1,3);
  TOP:=(N1*S2-S1*S1);
  UVAR:=TOP/(N1*(N1-1.0));
  USD:=SQRT(UVAR);
  UNSE:=USD/SQRT(N1);
  BVAR:=TOP/(N1*N1);
  BSD:=SQRT(BVAR);
  BSE:=BSD/SQRT(N1);
  BCV:=(BSD/MEAN)*100.0;
  UCV:=(USD/MEAN)*100.0;
  M3:=N1*N1*S3-3*N1*S1*S2+2*P(S1,3);
  M3:=M3/N3; B1:=(M3*M3)/(P(BVAR,3));
  M4:=N3*S4-4*N1*N1*S1*S3+
      6*N1*S1*S1*S2-3*P(S1,4);
  M4:=M4/(N3*N1); A3:=SQRT(B1);
  B2:=M4/(BVAR*BVAR); MEDIAN;
  MIN:=X[1,1]; MAX:=X[N,1]
END;

PROCEDURE COMPUTE;
BEGIN
  REPEAT
   READ(FIN,XT,CH);
   N:=N+1; N1:=N1+1.0; S1:=S1+XT;
   S2:=S2+XT*XT;       S3:=S3+P(XT,3);
   S4:=S4+P(XT,4);     X[N,1]:=XT;
  UNTIL CH='*';
  MORECOMP
END;

PROCEDURE DISPLAY;
BEGIN
 HEADING;
 WRITELN(FO,'  N   = ',N:5);
 WRITELN(FO,'MIN   = ',
 MIN:W:D,SP,
         'MAX     = ',MAX:W:D);
 WRITELN(FO);
 WRITELN(FO,'MEAN = ',MEAN:W:D,SP,
         'MEDIAN = ',MED:W:D);
 WRITELN(FO);
 WRITELN(FO,'UNBIASED ESTIMATES ',
             'OF VARIABILITY');
 WRITELN(FO,'VAR = ',UVAR:W:D,SP,'SD = ',
        USD:W:D);
 WRITELN(FO,'SE =  ',UNSE:W:D,
        SP,'CV = ',UCV:W:D);
 WRITELN(FO,'  BIASED ESTIMATES ',
             'OF VARIABILITY');
 WRITELN(FO,'VAR = ',BVAR:W:D,SP,'SD = ',
        BSD:W:D);
 WRITELN(FO,'SE =  ',BSE:W:D,
        SP,'CV = ',BCV:W:D);
 WRITELN(FO);
```

```
 WRITELN(FO,'            MOMENTS');
 WRITELN(FO,'M3 =  ',M3:W:D,SP,'M4 =  ',
         M4:W:D);
 WRITELN(FO,'B1 =  ',B1:W:D,SP,
         'A3 =  ',A3:W:D);
 WRITELN(FO,'B2, A4 = ',B2:W:D)
END;

PROCEDURE ZSCORE;
(* COMPUTES STANDARD SCORES *)
BEGIN
 WRITELN(FO);WRITELN(FO);
 WRITELN(FO,SP,'      RAW-SCORE ',SP,
         '  Z-SCORE');
 FOR I:=1 TO N DO
  BEGIN
   X[I,2]:=(X[I,1]-MEAN)/USD;
   WRITELN(FO,I:3,SP,X[I,1]:W:D,
           SP,X[I,2]:W:D)
  END
END;
```

```
BEGIN  (* MAIN *)
  INITIALIZE;
  REWRITE(FO,'CONSOLE:');
  HEADING;    INPUT;
  COMPUTE;    DISPLAY;
  WRITELN;    WRITELN;
  WRITE('STANDARD SCORES (Y/N)? ');
  READ(SDC);
  IF (SDC='Y') OR (SDC='y')

    THEN ZSCORE;
  WRITELN;
  CLOSE(FIN); CLOSE(FO,LOCK);
  WRITELN; WRITELN; WRITELN;
  WRITELN('**** END OF PROGRAM ***')
END. (* MAIN *)
```


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DOS 3.3 PATCHES Number 3

Lou P. Rivas

Have you ever wanted to run a binary program, or better yet, to EXEC a file as the HELLO program? The accepted method has been to write a one line Applesoft program:

```
10 D$=CHR$(4):PRINTD$;
  "BRUNyourfile":END
```

SAVEd as HELLO, it will BRUN (or EXEC, if you make the appropriate change above) the desired file. Then, since you can't be sure the Apple this will be booted on has Applesoft in ROM, you write the equivalent Integer BASIC program and SAVE it with the file name APPLESOFT.

The cost of this, in space, is two CATALOG slots and four disk sectors; in time, an extra CATALOG search, two sector reads, and the time needed to move the disk arm from the CATALOG to the track with the HELLO program and back to the CATALOG track - plus the time needed to initialize BASIC and interpret the HELLO program.

This cost isn't excessive, but if you don't want to pay it, there is a solution. The DOS can be patched to BRUN or EXEC the HELLO program as shown below (a 48K memory size is assumed).

Before INITing a slave disk, alter DOS as follows:

```
>NEW              <-- create a dummy
>10 END           <-- HELLO program
>CALL -151        <-- enter monitor
*9E42:34          <-- to BRUN HELLO
*9E42:14          <-- to EXEC HELLO
*3D0G             <-- return to BASIC
>INIT HELLO       <-- INIT slave disk
>DELETE HELLO      <-- remove dummy
>... copy in your binary or
       text file and call it HELLO.
```

To then update the slave to a MASTER:

```
>BLOAD MASTER CREATE
>CALL -151
*080D:4C   <-- escape after DOS load
*800G      <-- to load DOS
*1F42:xx   <-- patch as above in 9E42
*82DG      <-- continue MASTER CREATE
```

Now, when you boot the disk, it will BRUN or EXEC your HELLO program.

PROGRAM NOTES

The editor has been using PFS (Personal Filing System) and PFS:REPORT to tabulate the "Help APPLESAUCE" questionnaire he passed out last February. They have worked very well and have been a real help in organizing the data.

For further information on these products, see APPLESAUCE 2.3 and 2.6 for reviews.

STATISTICS

We hope that in the next APPLESAUCE Phil Ender will review some new stat programs from Human System Dynamics (9249 Reseda Blvd, Suite 107, Northridge, CA 91324; 213-993-8536). Drs. Stephen Madigan (USC) and Virginia Lawrence's two sets of programs look good. The first, called HSD STATS ($100), includes standard parametic stuff along with file and data handling. The second, HSD ANOVA ($80), will perform ANOVAs on most standard experimental designs.

PROGRAM NEEDED

The editor needs a program that will transform binary files so that EasyWriter, Pascal and other files can be used with APPLE PIE without uploading and downloading them. If you have such programs, please call (213) 450-8880.

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"Oh You CAD!"

Tom Leylan

It's a little late for April Fool's Day, but here is a program that may be good for a few laughs. It demonstrates how you can use PEEKs & POKEs to modify your programs on the fly.

This program counts the number of times that you boot the disk (or RUN HELLO), and after the 9th time it DELETES the specified program, INITIALIZES the diskette, DELETES the "Hello" that is created, and finally CLEARS the memory. Admittedly, it doesn't leave you with a whole lot—just a nice clean disk and an empty machine.

The important thing to remember when entering this program is that it is extremely dependent upon many of the program elements being in exactly the right spot in the Apple's memory. Don't enter extra spaces, change the line numbers, syntax, etc. If you type it in with no spaces (except those between quotes) the Apple will 'parse' it correctly, and everything will be fine.

Briefly then, this is how it works:

Lines 1 - 7 create the title page. After running, these lines automatically delete themselves. (After you run the program for the first time, the cursor will return and you should type 'SAVE HELLO'. Then to operate, either BOOT the disk, or RUN HELLO.)

Line 10 reserves some space in memory at location $806 HEX (2054 decimal). This spot serves as a flag and counter.

Line 14 checks the ASCII value of the character at location 2054. If it is less than 49 (the character "0"), it branches to line 26.

Line 16 subtracts 1 from the ASCII value and replaces it in location 2054. .br Lines 20-22 UNLOCK (just in case) and SAVE the now- modified version of HELLO.

Line 24 RUNs the program specified as "PROGRAM." You should type in the name of the program that you want to RUN (and crash). If the file is binary, change RUN to BRUN. (Your filename can be of any length, but be sure that you leave the blank characters after RUN or BRUN.)

Line 26: When the ASCII value of location 2054 is less than 49, this loop begins. Reading from the DATA statement, it pokes the word "DELETE" in place of the "RUN" in line 24. (That's why we need to leave the extra spaces). Control then jumps to line 24, where it does the deletion. The word "INIT" is then poked in and executed, followed by "DELETE" and finally "FP":REM". The REM will insure that everything after the command is ignored.

I assume that the technique can be useful beyond this sample application. It is just a matter of locating where a given program line is in memory and carefully replacing the values found there. Techniques for locating these memory locations are fairly well documented in the Apple Manuals.

```
1REM(C)OMPUTER (A)SSISTED (D)EST
RUCTION
2CALL-936:FORX=0TO23:FORY=0TO39:
PRINT"*";:NEXTY:NEXTX
3FORX=9TO13:VTABX:HTAB5:FORY=0TO
30:PRINT" ";:NEXTY:NEXTX
4C$="C  A  D":VTAB10:HTAB16:PRIN
TC$:C$="COMPUTER ASSISTED DESTRU
CTION"
5FORX=1TO1400:NEXTX
6SPEED=20:VTAB12:HTAB6:PRINTC$:S
PEED=255
7VTAB23:HTAB19:GETANY$
8CALL-936:DEL1,8
10REM9...LEYLAN
12CALL-936:D$=CHR$(4)
14X=PEEK(2054)
16IFX<49THEN26
18POKE2054,X-1
20PRINTD$;"UNLOCK HELLO"
22PRINTD$;"SAVE   HELLO"
24PRINTD$;"RUN    PROGRAM"
26FORT=2179TO2185:READW:POKET,W:
NEXTT
28GOTO24
32DATA68,69,76,69,84,69,32,73,78
,73,84,32,32,32,68,69,76,69,84,6
9,32,70,80,34,58,82,69,77
```

Note that there is no line #30 in the above listing.

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LOCATING I/O PERIPHERAL CARDS

Earl Allen

In order to reference any peripheral device, such as a printer, a disk drive, or a modem, a program must determine the I/O slot in which the peripheral card resides. Obviously, the program could ask the user; however, this is not always perferable in the case of a user not familiar with the Apple's I/O connections.

This article describes a method whereby an Apple program can locate an I/O card by PEEKing at the Peripheral Card PROM/ROM locations documented on pages 80 and 81 of the Apple II Reference Manual (A2L0001A).

The Peripheral Card PROM area, beginning at 49152 (-16384), maps the Programmable ROM code actually residing on the I/O card ROM chips. Each I/O slot maps 256 bytes of a card's ROM code into this area. This ROM code can be tested via PEEK instructions for determining the type of I/O card residing in each slot.

The first example demonstrates how to search the programmable ROM space for either a standard Apple Serial card or a standard Apple Parallel card. If another vendor's card were inserted in the Apple, that card's code would not be detected by these instructions.

The second example searches all seven I/O peripheral slots and matches their ROM code against some commonly available cards. The program's data statements obviously do not reflect all possible cards available for the Apple. If any reader of this article is kind enough to provide ROM code for any additional cards, I will provide him or her with an update of this article.

The code to be verified is up to the programmer; however, multiple bytes should be tested, since several I/O cards use similiar codes. Note that the Apple Graphics Tablet's code changes after twelve bytes, depending on the slot in which it resides. It looks as if its coding occupies only twelve bytes in the 256 byte ROM area. Its additional code is sitting in the 2K Expansion ROM space at $C800.

```
5   PO=0
10  FOR SLOT = 1 TO 7:  PK = 49152 +
    SLOT * 256
20  IF (PEEK (PK)=24) AND (PEEK
    (PK+1)=176) AND (PEEK
    (PK+2)=56) AND
    (PEEK (PK+8)=8) THEN PO=2:
    GOTO 100:  REM FOUND PARALLEL
30  IF (PEEK (PK)=44) AND
    (PEEK (PK+1)=88) AND (PEEK
    (PK+2)=255) AND
    (PEEK (PK+6)=144) THEN PO=1:
    GOTO 100:  REM FOUND SERIAL
40  NEXT SLOT:  REM DID NOT FIND
    APPLE SERIAL OR PARALLEL
```

The following table displays several common I/O cards with the first 16 bytes of their ROM code:

Apple Parallel
18 B0 38 48 8A 48 98 48
08 78 20 58 FF BA 68 68

Apple Disk II (13 sector ROM)
A2 20 A0 00 A9 03 85 3C
18 88 98 24 3C F0 F5 26

Apple Disk II (16 sector ROM)
A2 20 A0 PP A2 03 86 3C
8A 0A 24 3C F0 10 05 3C

Apple Serial (without handshaking)
2C 58 FF 70 04 38 90 FE
18 B8 08 78 86 35 48 8A

Apple Silentype
2C 58 FF 70 04 38 90 18
B8 48 8A 48 98 48 08 78

C.C.S. Serial (Asynchronous-7710A)
2C CB FF 70 04 18 B0 38
B8 48 8A 48 98 48 08 78

D.C. Hayes Modem
18 B0 38 B8 50 18 B0 38
2C 58 FF B0 03 8D 78 07

Mountain Hardware ROM+
2C 58 FF 38 70 04 38 90
18 B8 48 8A 48 98 48 08

Apple Graphics Tablet
18 B0 38 B8 08 78 2C FF
CF 20 00 C8 ** ** ** **

```
10 TEXT: HOME: REM SET MAX WINDOW
   CLEAR SCREEN
20 READ CARDCOUNT: DIM
   DESCR$(CARDCOUNT),
   CODE(CARDCOUNT,11):
   REM  DETERMINE
   NUMBER OF CARDS AND DEFINE CARD
   DESCRIPTION AND CODE ARRAYS
25 REM  LINES 30 THRO 80 WILL BUILD
   CARD DESCRIPTION AND
   CODE ARRAYS FROM
   DATA STATEMENTS AT END OF PROGRAM
30 FOR LOOP = 1 TO CARDCOUNT
40 : READ DESCR$(LOOP)
50 : FOR INDEX = 0 TO 11
60 :: READ CODE(LOOP,INDEX)
70 :: NEXT INDEX
80 : NEXT LOOP
90 :
92 :
94 :
96 REM  LINES 100 THRU 180 WILL
   PERFORM LOOP OF EACH I/O
   SLOT AND MATCH CODE
   AGAINST CODE ARRAY ENTRIES
100 FOR SLOT = 1 TO 7: REM  DO ALL
    SEVEN SLOTS
110 : FOR LOOP = 1 TO CARDCOUNT: REM
      CHECK CODE AGAINST ALL
      CODE ARRAY ENTRIES
120 :: FOR INDEX = 0 TO 11: REM  CHECK
       ON TWELVE BYTES
130 :: IF CODE(LOOP,INDEX) <> PEEK
       (49152 + INDEX + SLOT *
       256) THEN 160:
       REM  IF A BYTE DOESN'T MATCH,
       GO TRY NEXT CODE ARRAY TRY
140 :: NEXT INDEX: REM  IF ALL TWELVE
       BYTES MATCH, THEN CARD
       TYPE KNOWN
150 : PRINT "SLOT ";SLOT;" - ";
      DESCR$(LOOP): GOTO 180:
      REM  FOUND CARD MATCH - SAY SO
      AND GO ON TO NEXT SLOT
160 : NEXT LOOP: REM  GO ON TO NEXT
      CODE ARRAY ENTRY
170 : PRINT "SLOT ";SLOT;" - EMPTY
      OR UNKNOWN":
      REM  CARD NOT FOUND - SAY SO
      AND GO ON TO NEXT SLOT
180 : NEXT SLOT: REM  GO ON TO NEXT
      I/O SLOT
190 END
195 DATA 9
200 DATA "APPLE PARALLEL",24
   176,56,72,138,72,152,72,8,120,32,88
210 DATA "APPLE DISK II - 13
   SECTORS",162,32,160,0,169,3,133,
   60,24,136,152,36
220 DATA "APPLE
   SERIAL",44,88,255,112,4,56,144,
   254,24,184,8,120
230 DATA "D.C. HAYES MODEM
   II",24,176,56,184,80,24,176,56,
   44,88,255,176
240 DATA "MTN HARDWARE
   ROM+",44,88,255,56,112,4,56,144,
   24,184,72,138
250 DATA "APPLE GRAPHICS
   TABLET",24,176,56,184,8,120,44,
   255,207,32,0,200
260 DATA "APPLE
   SILENTYPE",44,88,255,112,4,56,
   144,24,184,72,138,72
270 DATA "CCS ASYNCH
   SERIAL",44,203,255,112,4,24,176,
   56,184,72,138,72
280 DATA "APPLE DISK II - 16
   SECTORS",162,32,160,0,162,3,134,
   60,138,10,36,60
```

SAMPLE RUN

```
RUN
SLOT 1 - CCS ASYNCH SERIAL
SLOT 2 - EMPTY OR UNKOWN
SLOT 3 - D.C. HAYES MODEM II
SLOT 4 - EMPTY OR UNKNOWN
SLOT 5 - APPLE GRAPHICS TABLET
SLOT 6 - APPLE DISK II - 16 SECTORS
SLOT 7 - MTN HARDWARE ROM+
```

C. E. Collins of CEC Systems, Minneapolis, Minnesota, (phone: (612) 546-5694), an Apple consultant, provided this article, Reprinted from Mini'app'les May 1981 Newsletter, pp. 10-12. Copyright 1981 by Earl Allen.

Editor's note: One of the OAC reviews of this paper pointed out that the loops in statements 130 and 150 should be properly terminated. The reviewer suggests the following code:

```
130 :: IF CODE(LOOP,INDEX) <> PEEK
       (49152 + INDEX + SLOT *
       256) THEN INDEX=11:NEXT
       INDEX: GOTO 160:
       REM IF A BYTE DOESN'T MATCH,
       THEN TRY NEXT CODE ARRAY.

150 : PRINT "SLOT ";SLOT;" - ";
      DESCR$(LOOP): LOOP=CARDCOUNT:
      NEXT LOOP : GOTO 180:
      REM FOUND CARD MATCH - SAY SO
      AND GO ON TO NEXT SLOT
```

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hardware reviews

BENCHMARK: THE CCS 7811B ARITHMETIC PROCESSOR

Those users into heavy numerical calculations know how easily the small 6502 processor can be overloaded. To help remedy this situation, California Computer Systems developed its Model 7811B arithmetic processor board (price: $400). The board uses an AMD AM9511A chip to increase the speed of floating-point operations.

For this board to be useful, the language you use must be patched to accommodate it. Supplied with the board are several versions of "CCSOFT", one for each slot the board can reside in. This is simply a patched ROM Applesoft. Also available for Apple II+ and Applesoft ROM card users is a CCSOFT ROM. Pascal support is not available. Modification of the DOS 3.3 boot sequence is required to get it operating with the Language System.

Use of the AM9511A chip is not without its drawbacks. Precision is cut down to 6 or 7 digits. Numbers can only be between +/- 10**20. And the arithmetic processor truncates numbers, instead of rounding them as Applesoft does.

The benchmark chosen for this board is the familiar physics three-body problem. Since Newton's laws of gravitation cannot be readily evaluated when more than two objects are involved, numerical integration must be used to approximate the position of each body. The Apple must evaluate eighteen equations for every object that is moving to get its new position. Even when these are streamlined, they still require a lot of computing time.

With two moon-sized objects orbiting a stationary earth, results of this simulation were as follows:

	Steps	Minutes
Applesoft	680	16
CCSOFT	7770	136

In other words, CCSOFT computed 57.1 steps (10,000 meters/step) per minute, whereas Applesoft managed 42.5 steps/minute. The CCS arithmetic processor increased calculation speed by 34.4% over Applesoft.

This small increment may not seem worthwhile, but it is not representative of the full power of the CCS board. For one thing, there is a good deal of overhead from printout to the Apple's screen involved in the simulation. Secondly, the three-body problem involves mostly multiplication, which only receives a 50% speed increase from the 7811. Trigonometric and logarithmic calculations, on the other hand, run as much as 18.1 times faster for inverse cosine and 12.1 times faster for log base 10. Lastly, one simulation with this program ran for 414,514 steps. With the CCS board installed, it took 5 days. Without it, the program would have required an additional 1.8 days to finish. And when you're waiting for results, 44 hours is a big difference.

It would be interesting to run this code as compiled by both the Expediter and Hayden's Applesoft compilers to see how much faster this simulation would run.

Bill Fisher

John Bell Engineering's Display Board A Review and a Repair

The John Bell Display Board is an educational and troubleshooting tool for the Apple II. It plugs into any slot on the motherboard and provides a continuous visual readout, via discrete LEDs, of the information on the address and data busses. A three-position switch also allows you to halt the computer or single-step it through a machine language program. While these functions may not appeal to the BASIC-only Apple user, they are immensely helpful in understanding how the computer works if you are interested in what goes on "under the hood."

Upon placing the assembled board in my computer, I immediately ran into two problems. I had

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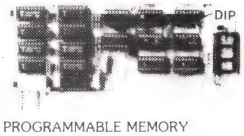

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hoped to use the display board with my Applethrottle speed control from West Side Electronics. The Appletrottle uses the game paddles to control the speed and to stop the 6502 CPU in the Apple. Thus, these two boards together should make it possible to watch the computer run in slow motion. However, whenever the display board was in the computer, the Applethrottle would not function. This problem was traced down to fact that the display board uses a direct TTL output to drive the RDY (READY) line on the Apple's bus. Like most of the other control signals (IRQ, NMI, RESET, etc.), this line is meant to be driven by an open-collector or other active pull-down circuit. This means that whenever a board wants to halt the computer, it should pull the RDY line low (to ground). At all other times, it should present a high impedence to this line — not a logic high as the TTL output of the display board does. This makes it impossible for other boards, such as the Applethrottle, to also control the RDY line.

Fortunately, there is a very simple fix for this problem that requires only one diode and a little soldering. Figure 1 shows where the added diode goes. See the end of this review for detailed installation instructions.

Although I planned to use the Applethrottle to control start/stop operation of the computer, I decided to try out the switch on the display board. Here is where I found another, more serious design flaw. Several times when switching between RUN and STOP, the computer would hang up and need to be reset. I glanced at the schematic for the board and realized that this switch was controlling the RDY line asynchronously, that is, without regard to the current clock cycle of the 6502. One of the requirements of the 6502 is that the RDY line change state only during the 01 (Phase One) clock cycle. I was all too aware of this fact, having modified my Apple Serial Interface board for handshaking using the RDY signal. What is really trivial about this problem is that the necessary circuitry to make it work properly is already on the board. In fact, all that is required to fix this problem is to swap connections to two pins on the 7474 labeled IC6. The connections to pins 4 and 10 can be changed as follows:

(1) Start by cutting two traces. The first is on the component side of the board and starts at the right side of R28, going downward towards and under IC6. Using an Exacto knife or similar tool, cut this trace cleanly so there is no longer any connection. The other trace to be cut is on the back side of the board. It is the short one between pins 10 and 12 of IC6.

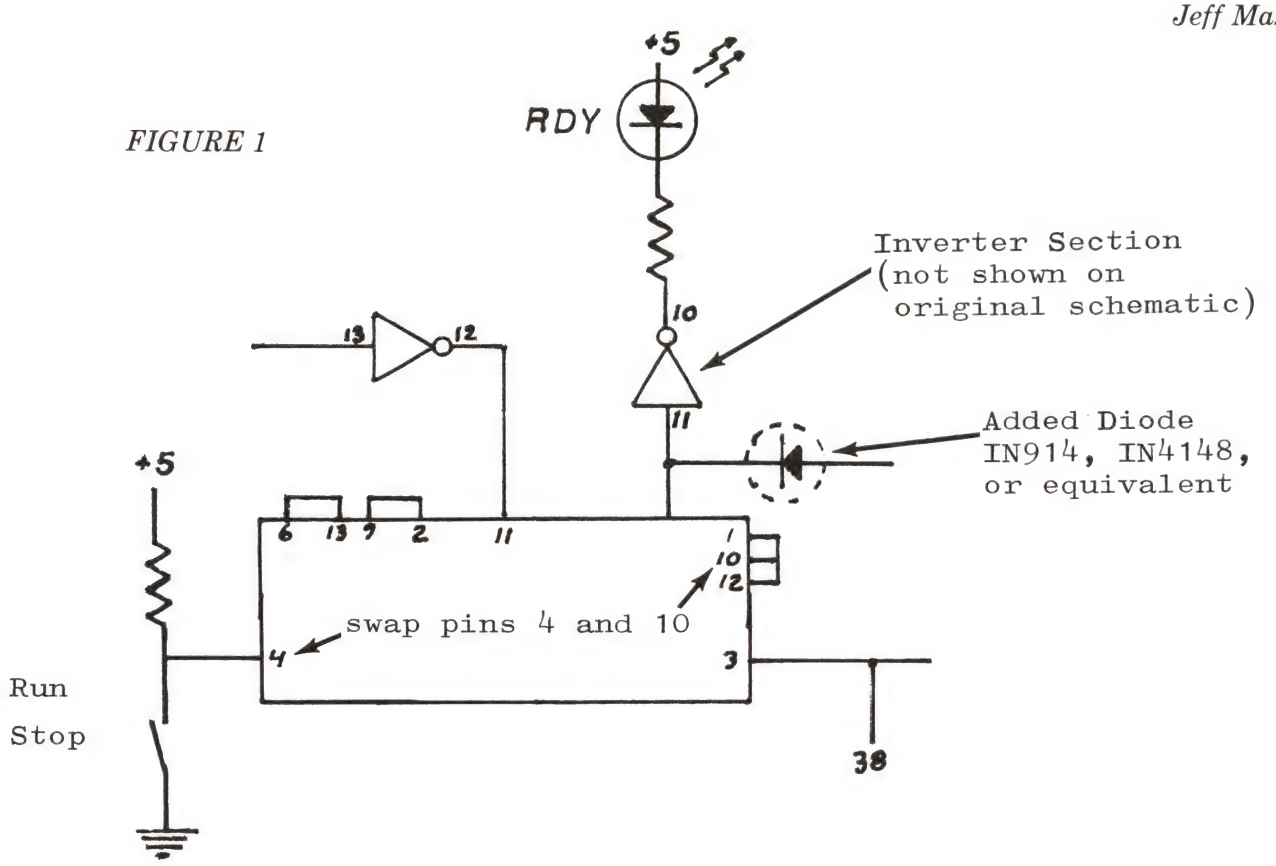
(2) Using some small gauge gauge wire (30 gauge wire-wrapping type is ideal), connect pins 4 and 12 of IC6. Then connect pin 10 to the right side (the left side when looking from the back) of R28 that was isolated in the previous step.

(3) To add the diode, locate the trace that goes to pin 21 of the edge connector. Follow it up to where it meets a hole in the board, flip the board over, and note that this trace continues on to pin 5 of IC6. Somewhere between the hole and pin 5 cut the trace. Then connect the diode to the same two points; the cathode goes to pin 5, the anode to the hole. That's it!

After I made the two modifications just described, the board has worked very well. Interpreting the discrete LEDS as hexadecimal numbers is slow at first, but becomes easier with practice. Adding a hexadecimal display would be helpful, but the readouts alone would cost as much as the original board.

Jeff Mazur

FIGURE 1



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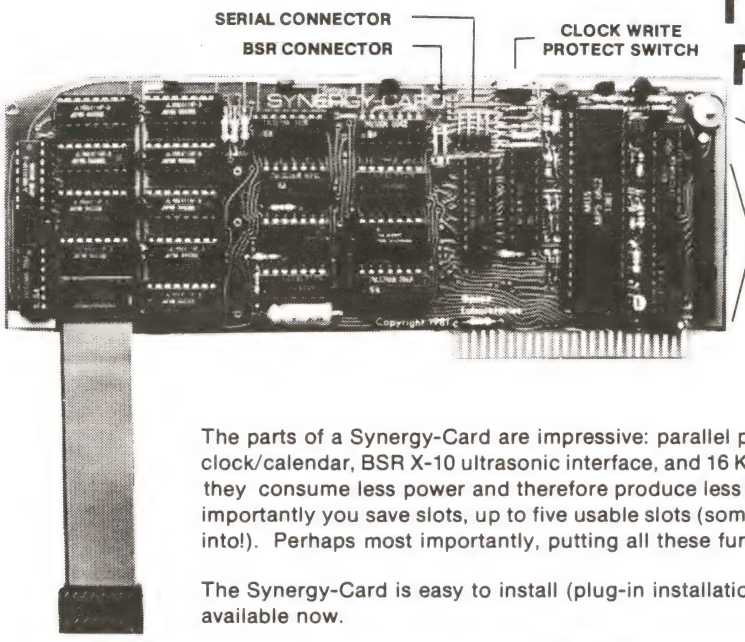

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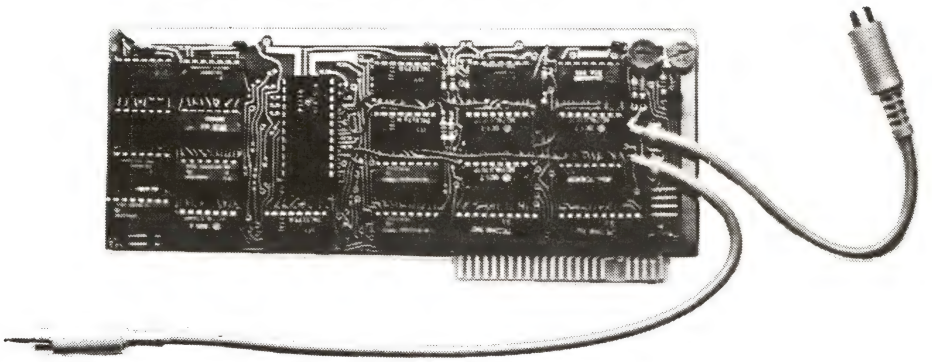

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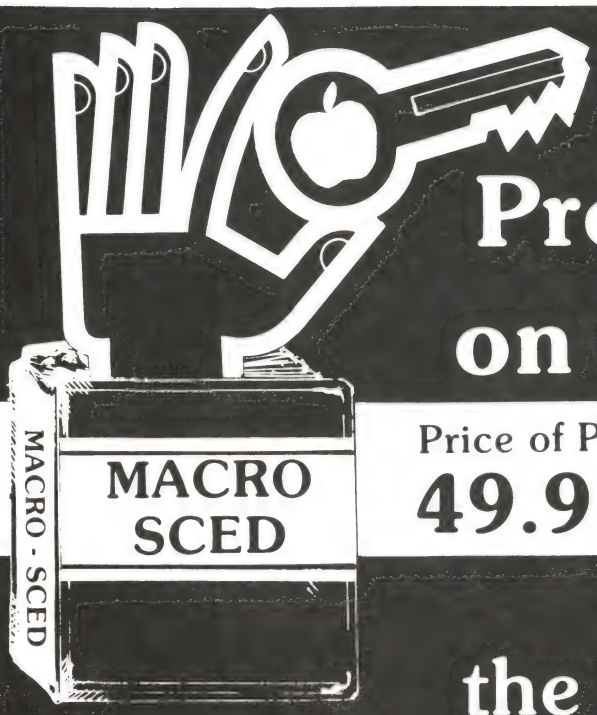

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Editing commands within a macro	YES	—
Automatic chain to another macro	YES	—
Macros available in edit mode	YES	—
Add/Change macros without destroying current Basic program in memory	YES	—
LOWER CASE CAPABILITY		
Lower Case entry from keyboard	YES	YES
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SOFTWARE REVIEWS

CCA Data Management System

When the people who market VisiCalc (Personal Software) introduce a new product, everyone sits up and takes notice. But here is the bottom line on their new CCA Data Management System: whereas VisiCalc was an extraordinary program, CCA DMS is an ordinary program. It isn't a bad program (in fact, it has some very nice features); it's just that in comparison with VisiCalc, CCA DMS is a disappointment. Of course, most other programs are, too.

CCA DMS runs on an Apple II or Apple II* with at least 32K of memory and DOS 3.2. It costs approximately $100. Having booted the supplied diskette, one is faced with a standard database manager menu. For CCA DMS, this includes the following options:

Quit the program
File maintainance
Report generator
Compact a file
Define a file
Sort a file.

To begin, the user must define a file. A file is made up of records, and each record is made up of a number of fields. In CCA DMS, fields can be numeric, alphabetic, or computed. A computed field is a mathematical combination of two or more fields from the same record. The File Definition phase is fairly straightforward, but with computed fields care must be taken to insure that they are wide enough. For example, if Field C is the sum of Fields A and B, which are each five columns wide, then Field C should be six columns wide.

The File Maintenance function is the one in which records are entered, searched for, changed, or deleted. Here is where we run into the first deficiency in CCA DMS. During data entry, there is no screen mask or indication of how wide each field is. If the name field is 15 bytes long and the user enters a name of 20 characters, the program gives an error message and prompts to re-enter. However, it doesn't tellthe user how long the field should be.

Another irritation is that the user is prompted for input into computed fields. Since anything the user might enter into a computed field is overwritten by the computation, it is a waste of time to respond to prompts for computed fields.

When records are deleted, they aren't removed physically from the disk. They are just flagged as deleted. To permanently remove deleted records, one has to run the File Compact function, which creates a new copy of the file without the deleted records. This is, it should be noted, a very handy feature to have in situations where accounts can be active at one time and not at another.

The File Sort function is fairly slow, especially if the user is sorting on more than one key. When a file is sorted, an entirely new copy of the file is made. (Make sure there is enough room left on the diskette!) A useful feature of the sort function is that the original record numbers are maintained; thus, the first record of a sorted file will not necessarily have a record number of 1. This is handy in cases where there is a master file and one or more sorted files. The user, as a result, can always tell which record of the master file is being processed when working with one of the sorted files.

Next we come to the Report function, which is perhaps the best feature of CCA DMS. The report generator is very flexible, in that the user can include fields and order them in any manner he wishes. Furthermore, through the use of breaks and column sums the user can generate useful, professional-looking reports. It is possible to create and store a number of report formats for each file. (Setting up a report format may, however, be a little complex for people not used to computerese or database jargon.)

Another nice feature of the system is that both the file definitions and the report format are separate from the data files. This means that once a file format is defined, more than one data file can be used with it. For example, an employee file sorted by name and the same file sorted by identification number have different file names but the same format. Likewise, a report format, once defined for data from Company A, can be used for Company B, as long as the data files have the same format.

One potentially useful feature is missing from CCA DMS: the ability to create new files by combining or merging existing files. For example, if a company's personnel and accounting officers both have files on

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employees, it should be possible to merge the files into one file that has the information from both files.

The documentation isn't as good as it might be for inexperienced users. The CCA manual provides enough information on the storing of data files to guide a competent programmer in the writing of such a program, but most of the people likely to use this DBM system will not be programmers.

The people at Personal Software have developed what might be a very powerful feature — the ability for CCA DMS and VisiCalc to exchange data. The data exchange is accomplished through what is called a "Data Interchange Format." While it is indeed possible to exchange data, the process is complex and troublesome.

I had little trouble using this program, but when others not as familiar with computers tried it, they found it very confusing. Especially confusing to them were some of the messages printed on the screen. Each operation or error generates a message preceded by a code number. For a complete explanation, the user must look up a given code number in the manual. I'm sure that the CCA people see this as a plus, but people inexperienced at computing will find this confusing.

CCA DMS is supported by an active users' group, which anyone using this system would certainly want to join. The existence of the users' group is a big plus for the system.

But, as I indicated at the beginning of this review, CCA DMS is an ordinary rather than an extraordinary program. I would recommend it only to those with both computers and database systems — a select group of users for which CCA DMS could be very useful.

Philip B. Ender

On September 1,1981, Personal Software released Visifile, a complete revision of CCA. It includes, among other features, full-screen mapping, fast sorting, and file reformation. The price is $250; current CCA DMS owners receive full credit on upgrading.

The CCA DMS Users' Group, which has some 800 members, may be contacted c/o Jamison Electronics, P.O. Box 3934, Torrance, CA 90510. Membership is $9 a year.

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HowardSoft's TAX PREPARER

Available from Howard Software, 6713 Vista del Mar, La Jolla, Ca. Price: $99.

HowardSoft's Tax Preparer allows the user to develop Federal Income Tax returns on an Apple. The program accepts personal income tax data, automatically performs all the necessary tax computations, and then prints out attractive computer-generated forms. The package comes with a program disk, a storage disk, and some 40 pages of very good documentation.

The program is entirely menu-driven and is very simple to operate. In order to fill out a return, the user boots the program disk and selects the main program from the initial menu. Soon he is confronted by a menu that is primarily a list of forms and schedules. From this menu the user loads the Form 1040 program and supplies the requested information line by line until he arrives at a line that depends upon one of the various specialized schedules or forms. He then exits from Form 1040 and loads the required supplemental schedule. He follows the excellent prompting, fills in the schedule, creating subfiles of itemized lists as necessary, and finally returns to Form 1040 as a kind of home base.

For example, most taxpayers—or at any rate most taxpayers prosperous enough to own home computers—will probably have a certain amount of interest and dividend income to report. Such a user of this program will complete Form 1040 until he reaches lines 9 and 10. Leaving these lines empty, he will exit from Form 1040 and select Schedule B from the menu of schedules and forms. If necessary he will create itemized subfiles of the income from each of his separate bank accounts and stocks. He will then instruct the program to save the completed Schedule B and will return to Form 1040 to find that lines 9 and 10 have now been filled in. Not only have the figures from each of the itemized subfiles been totalled and entered in the appropriate places, but also such matters as the $100 per person dividend exclusion have been automatically incorporated in the return. The user then continues his line by line completion of Form 1040 until the next time a schedule is called for.

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Schedules A through G, R and RP, SE, and TC are included, as are the forms for employee business expenses, investment credit, depreciation, maximum personal service income tax, supplemental schedule of gains and losses, energy credits, and underpayment of estimated tax by individuals. (Starting with the 1981 tax year, three additional forms, including the one for reporting the sale or exchange of a principal residence, will be available for purchase as a special supplement.)

The prospective user of this package should note that, with the exception of Form 1040, the computer printouts that the Tax Preparer generates may be submitted directly to the IRS. Although facsimile versions of Form 1040 are not acceptable to the IRS, nevertheless the program can be used to print directly on the government-supplied forms or on special pin-fed copies of Form 1040 that are available for computer users.

The prospective user should realize that this is a mechanical tool. Knowledge of tax laws, forms, and planning should be joined with professional advice. However, removing the mechanical problems of tax tables, income averaging, transfering numbers correctly, etc., allows the user the luxury of concentrating on lower taxes, instead of filling out the forms. But a knowledge of tax form flows is necessary in order to interface the parts of the program correctly.

The Tax Preparer should not be confused with the Tax Planner available from Apple. Tax Planner is an analytic tool that can be used to calculate the effects of various filing strategies. If you want to know whether it would be better to take a particular deduction this year or next, Tax Planner is the program to consult. The Tax Preparer might be used as an analytic tool, but it would not be efficient. one.

The Tax Preparer is not a particularly good tool for keeping tax records during the year, because the user does not have direct access to the itemized subfiles. In order to add a new item to, say, a subfile of deductible cash contributions, the user must load the main program from the program disk, then switch to the storage disk on which his files are kept, load Schedule A (Itemized Deductions) into memory, scroll to line 21, call up the itemized subfile, and finally edit it. A useful addition to the package might be a specialized record-keeping program that would provide faster access to the itemized subfiles. Another helpful addition would be a back-up command for use when entering information. If a line is mis-entered, the user must scroll or jump forward through the entire form in order to get back to the same line again.

Howard Software hopes to have a California State version available for the 1982 tax season. In the meantime, the federal version will provide most of the numbers necessary to fill out the state form by hand quickly.

The tax codes are continually under revision, and consequently the Tax Preparer is good only for a single year at a time. Howard Software does update the package each January, but the cost of the update is significant. According to the company, next year's update is expected to sell for about $40.00. Thus, for the individual taxpayer who files a single federal return each year, the Tax Preparer, which, unlike an accountant, does not give money-saving advice, is something of a luxury item. For the tax professional, however, or even for the person who fills out as few as four or five separate federal returns a season, the Tax Preparer is a very useful tool. It is intelligently constructed, easy to learn to use, and could save considerable time and labor. It might also, perhaps, help to justify that 100% hardware and software tax write-off that is, so to speak, the Apple of every computer owner's eye.

Mark Rose

Bill Blue's Z-TERM: A CP/M Communications Package

Available from Southwestern Data Systems, 10159 G Mission Gorge Road, Santee, CA 92071; phone: (714) 562-3670.

Bill Blue's Z-TERM brings to the Apple computer a telecommunication package in the style of ASCII EXPRESS II. The program offers a flexible system for using an Apple as a highly intelligent remote terminal.

To use Z-TERM, you'll need a Z-80 Softcard, a communications card (e.g., serial card with modem or a Hayes Micromodem), disk drive, and 48K. Optionally, a 16K card is nice because it gives you a 13K larger buffer (36K total), and an 80-column card. The documentation implied that configurations other than standard CP/M could be accommodated, but an explanation for doing so is not included. I could not get the modem to work in any slot other than #2.

The menu, which appears on booting up, contains all the standard options and a few additional niceties, such as displaying control characters, turning on the printer, viewing a received file in the buffer, and changing the logged disk. There is no editor for use during terminal mode; therefore, any editing must be done in CP/M prior to logging on.

A database of up to twelve phone numbers and log on sequences may be created with a special editor and stored in a MACRO.LIB. Each log-on sequence may contain up to twelve elements: e.g., phone numbers, passwords, dial delays. Of course, with no automatic display of telephone numbers, you must memorise which macro (1-12) has been assigned to which number. The macros can be called from the main menu in response to the "number to dial" prompt or with a two key sequence for displaying special characters.

Z-TERM can be configured to emulate the type of terminal you need. The keybord may be reconfigured and the default parity, baud rate, duplex, etc. can be set for your installation. I encountered a small problem in changing the parity; the configuration program would not accept a one-digit number in response to a one-byte flag. The number "9" had to be typed as "09".

The 30-page documentation is very adequate for operating the system. It assumes that you have a working knowledge of modem operation and terminology. An experienced modem and CP/M user will have the system up and operating in a few minutes.

Z-TERM is a very fine program for telecommunication using CP/M. Those who are familiar with the work of Bill Blue will be happy to see that he has provided the same high quality to CP/M that he has brought to the Apple in the past.

Stuart LeVine

PROGRAM NOTES

The editor has been using DB MASTER to help keep track of articles, reviews, manuscripts, and products for review. It has worked very well and has been a real help in organizing the magazine.

For further information on this product, see the review in the last issue and continued in this issue of APPLESAUCE.

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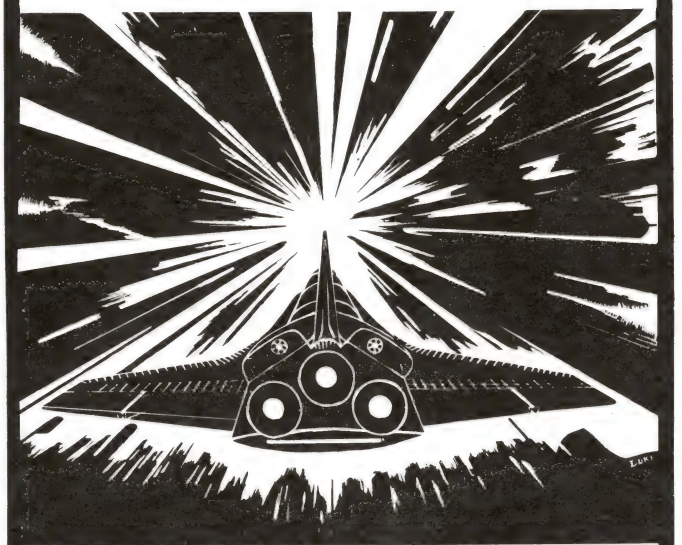

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Edu-Ware's STORY TELLER An Obituary Review

Editor's note: George Guffey purchased STORY TELLER last spring in Los Angeles. Edu-ware took it off the market about a year ago. Nevertheless, this review warrants inclusion because it points out the factors users must evaluate when purchasing any kind of educational software.

Written by Stephen W. Pederson and Sherwin A. Steffin, Edu-ware's STORY TELLER is, according to its documentation, the first in a series of programs that will eventually comprise "a complete course in English Grammar and usage." STORY TELLER itself is an interactive program designed to "give the user an easy way of writing short, . . . humorous paragraph length stories," while also introducing him to "some of the rules that make" English "work."

The program is simple to use. It first requires the user to type lists of nouns, verbs, adjectives, and adverbs. For those who have either forgotten or have never before studied the parts of speech, a short lesson on each part can be called up and displayed with a mere flick of the finger. The length of each list is determined by the user. (Reasonably long lists are, of course, necessary, if the story routine is to be run a number of times without excessive duplication of output.) After the last requested list has been typed, a very short story (approximately forty or fifty words long) appears on the monitor (and on paper, if the user has turned his printer on).

In general, STORY TELLER is reminiscent of that perennial favorite of children — "Mad-Libs." Blank spaces in skeletal stories (four, in this case) are automatically and randomly filled with words from lists supplied by the user. At times the resulting output may be nearly meaningless. For example, here is a "story" produced from lists of words I compiled for one session with the program: "A LONG TIME AGO, A FAMOUS TOOTH NAMED WINSTON KISSED IN A COOL STORE SELLING MANY KINDS OF STARS AND BEING FAIRLY SUCCESSFUL AT IT. THEN ONE DAY IN WALKED A PICKLED PATH. WHEN WINSTON SAW THIS PATH HE TASTED QUICKLY. AFTER ALL, PATH'S (sic) ARE NOT EXACTLY NOTED FOR THEIR SPEAR." Another run utilizing the same lists of words, however, yielded a more logical narrative that at times approaches the boundaries of surrealist poetry: "A LONG TIME AGO, A FAMOUS WORM NAMED THE SHADOW KICKED IN A SHORT STORE SELLING MANY KINDS OF GUNS AND BEING FAIRLY SUCCESSFUL AT IT. THEN ONE DAY IN WALKED A PICKLED MOOSE. WHEN THE SHADOW SAW THIS MOOSE HE DROPPED AWKWARDLY. AFTER ALL, MOOSE'S (sic) ARE NOT EXACTLY NOTED FOR THEIR TIGER."

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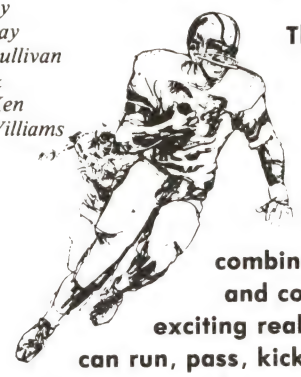

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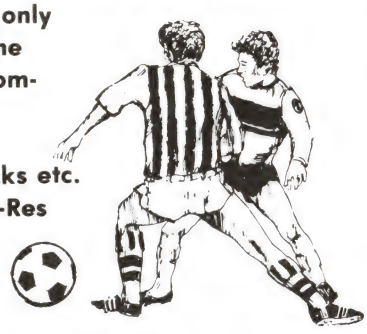

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Grammar school students would almost certainly find madcap stories like these hilarious, and, in the process of learning to generate them, would also find themselves sporadically reviewing the parts of speech. A few sessions a month with such programs would help vanquish some of the tedium many students have come to associate with the study of the English language.

Although potentially useful in the classroom, the package exhibits serious weaknesses which will militate against its adoption. Both the documentation and program contain significant errors that could have been easily avoided. As the word "PATH'S" above so clearly attest, line 1035 contains an error that results in the formation of plurals by the addition of "'s" to singular forms. This and other similar errors (for example, an extra period in line 63010) are, if one understands BASIC, easily corrected. Most teachers of English do not, however, have the knowledge required to make such changes. Some who might like to use this package but lack the background necessary to polish it for classroom use will very likely consider it further proof that computers are crude, error-prone machines — machines which (like their television sets) present a continuing threat to everything they hold dear.

George Guffey

CRAE (CO-RESIDENT APPLESOFT EDITOR)

Available from Highlands Computer Services, 14422 S.E. 132nd, Renton, WA 98055; phone (206) 228-6691.
Price: $24.95.

Although Applesoft BASIC is useful for many programming tasks, it sometimes makes a programmer work harder than he or she should have to. For instance, there is no way to renumber a program's lines if you discover that fifty lines need to be inserted in a space meant for five. Similarly, entering long programs can be tedious if the line numbers must always be typed in at the start of each line. The Co-Resident Apple Editor (CRAE) is a program intended to solve these and several other Applesoft difficulties. It is also compatible with the popular PLE editor.

CRAE comes with a 20-page manual describing the various commands and giving brief hints on how to set it up. Unfortunately, some of the notation is inconsistently used, and not all commands are fully

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described. To find out exactly how a command works, it is sometimes necessary to look through the examples and their associated explanations. Another problem with the manual is the writer's poor spelling.

Briefly, the CRAE command set is as follows:

A Append file to one in memory
C Change one string to another
D Formatted hexadecimal dump
F Global string search
L Compressed listing of program
M Modify one line
N Auto line numbering
Q Quote (copy) lines
R Renumber program

The editor also includes several "quick and dirty" commands for such functions as hex-to-decimal conversion or checking how much space remains in memory.

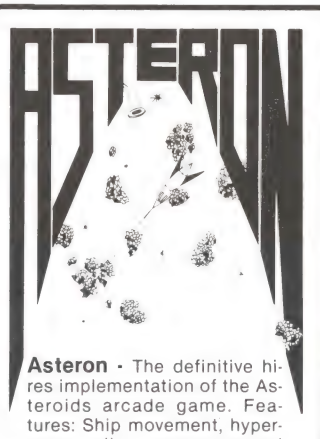
The most serious problem with some of the commands is a lack of uniformity: not all similar commands take their parameters in the same order. Calls to Renumber and Quote expect the NEW and INCREMENT parameters to be switched. Also, defaults and operating methods for some commands may be the opposite of what is expected.

Now for a detailed look at part of the CRAE command set.

The Change command accepts two strings, replacing one occurrence of the first string on a given line with the second string. Default is global replace, but only on the first occurrence in a line. The "all" option must be specified in order to replace every occurence of the string. This default can be confusing.

The Dump command creates a hexadecimal and ASCII character dump of memory between two given addresses. This might be handy for fiddling with pointers or finding locations where strings are stored. You can use the "*" command to alter memory contents.

The Find command, like Change, is very handy for big programs. It will find every instance of a string in a given range of lines (default is the entire program). Its quirk is in the handling of spaces — for example, if you want to look for a GOSUB 100 statement, you must give CRAE the string GOSUB100, since Applesoft does not keep blanks internally.



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The List command is also affected by Applesoft's blank storage methods. It prints a "completely optimized" listing of your program, which means that everything is run together. Keywords wrap around screen edges, which can be annoying. This command sounds like a good idea, but it creates as many problems as it solves.

CRAE's Modify mode is a fancy way of editing a line. It acts like a mini full-screen editor that works on one line at a time. Insertions move all text to the right, and deletions pull text to the left as each character disappears. There's no need to "trace" a line with the right arrow key to get it into memory, as required by Applesoft. The trouble with this mode is that insertions are made to the right of the cursor instead of under it, and the left arrow key deletes characters to its right instead of to the left. This is something one could get used to, but it sure isn't the way other editors work.

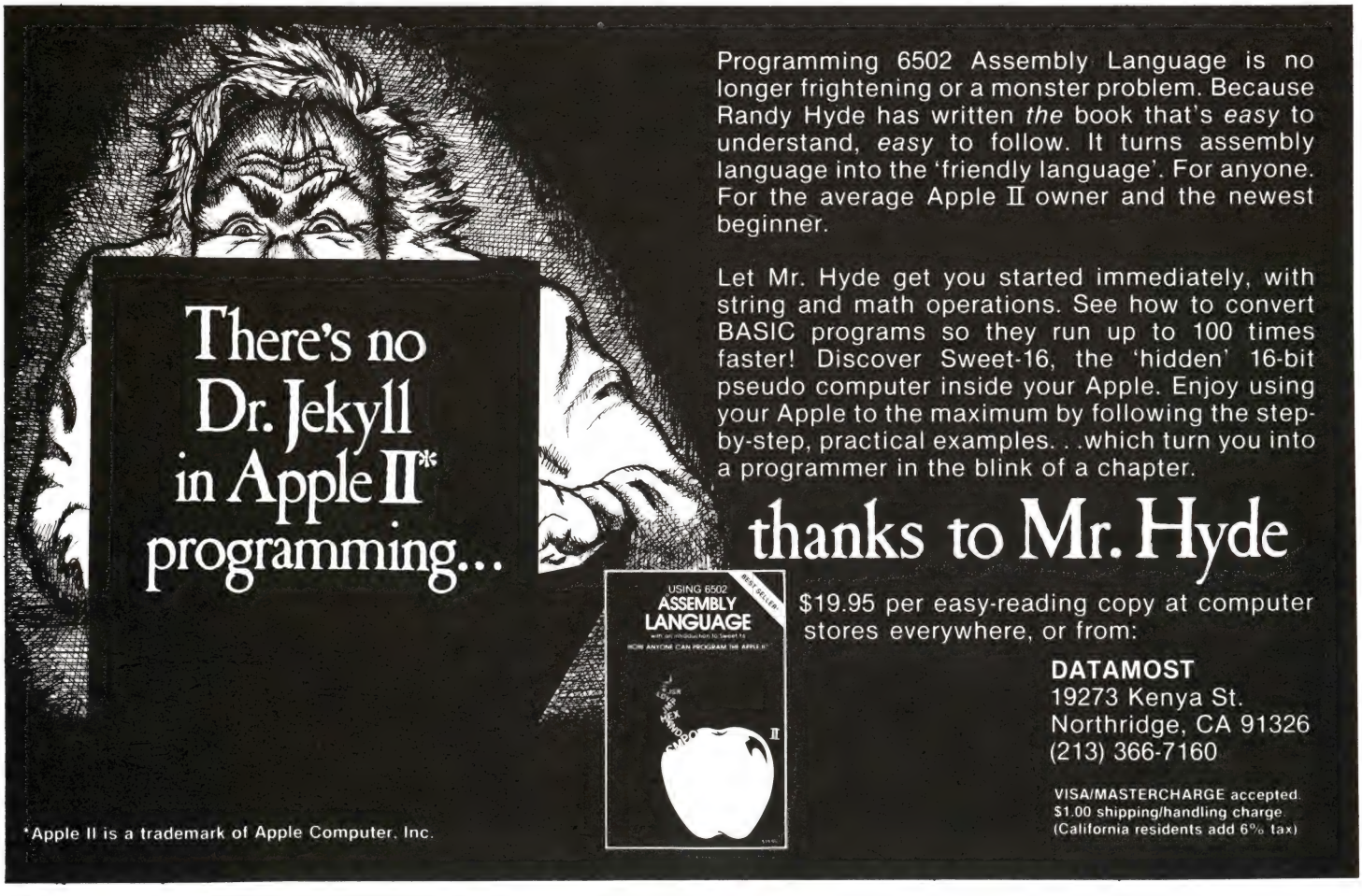
Another useful feature that CRAE provides is Quote, which copies a block of lines. No changes are made to the line numbering though, so you must do that yourself.

Renumbering is one of the features sure to be welcomed by CRAE users. It removes the problem of having too many lines crammed into a small block of code by allowing you to renumber selected blocks of your program (default is the whole program), specifying the new increment between each line. Renumber operates quickly, taking only a few seconds even for long programs.

Last come the "Quick and Dirty" commands: "*","!", and "%". The first lets you type any monitor command directly from CRAE. The next two have dual functions. By itself, "!" tells how many bytes remain between your program and HIMEM:; "%" tells length and address of the last BLOADed program. In the other mode, "!XXXX" converts a hexadecimal number to decimal; "%XXXX" performs the reverse conversion.

In conclusion, CRAE provides a number of convenient features not found in standard Applesoft. And, although it has some quirks that need getting used to, it would be a good addition to the Applesoft programmer's library — one he or she will use often.

Bill Fisher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TRAVELING ON THE ASCII EXPRESS II

Available from Southwestern Data Systems, 10159 G Mission Gorge Road, Santee, CA 92071; Phone: (714) 562- 3670.

The first thing I noticed about Bill Blue's ASCII EXPRESS II was the beautiful 36 pages of documentation. Secondly, I noticed that Southwestern Data Systems is far ahead of many other software houses in that a copy program is provided on the master disk. The documentation suggests that a back-up copy be made initially before continuing further. This copy program, however, does not itself appear on the four allowed back-up copies.

The installation process for ASCII EXPRESS II is quite thorough. After the configuration program is run and the slot number of the MODEM is set, a terminal program is loaded. Necessary changes are all made in one line. These values control the printer slot, Micromodem or Comm Card, scroll speed, duplex mode, carrier detect status, baud rate, case select, special printer commands, and word length and parity options. In a program of this quality, one would expect a configuration program that makes these changes automatically.

ASCII EXPRESS II uses five command menus. These include the following:

1) MAIN COMMAND MENU
2) SUB COMMAND MENU
3) MACRO MENU
4) NUMBERS FILE MENU
5) EDITOR COMMAND MENU

The MAIN COMMAND MENU allows you to answer the phone, switch to the SUB COMMAND MENU, dial a system, end the program, determine free disk space, get and put a file on disk, get MACRO and number files, output buffer to printer, receive a file, send a file, view buffer, and exit to the line editor.

In dialing, ASCII EXPRESS II excels. Options included are the ability to dial manually or using a file of numbers. Incidentally, an added attraction is the ease of logging onto those mainframes which frequently have involved procedures. A MACRO file is loaded with the auto dial feature. By using (ctrl-a) followed by a number from 0 to 9, a ":" and a ";", up to twelve MACROs can be use to help you log on. If there is no connection made, ASCII EXPRESS II allows you to re-dial automatically X number of times by using a (/X).

When using the GET FILE command, it is possible to view the disk directory by hitting return. Also the default drive, slot, and volume may be changed.

The RECEIVE A FILE command allows you to specify the command to send, acknowledge string, and slave vs. master mode. Files can be appended to the buffer or the buffer can be cleared prior to down loading. Using the SEND A FILE COMMAND, one line or one character can be sent at a time. The prompt character may be specified if needed.

The SUB COMMAND MENU has commands to toggle the copy buffer, the printer, and the baud rate. The baud rate and special character display are not on the screen menu. The special character command is useful for viewing control characters sent by the host computer and also for viewing characters not normally present on the Apple keyboard.

The editor is a good line- oriented text editor which has disk access and line centering as a well as buffer access.

Several utility programs come with ASCII EXPRESS II. These include a spacecrunch and binary, Integer, and Applesoft- to-text conversion programs. They are really helpful in transferring data as opposed to just downloading from bulletin boards.

In summary, ASCII EXPRESS II is an excellent communications package. In addition to the few deficiences mentioned above, I would like to see a complete status line and an 80 column version.

Russell V. Gill

MCAT2

Available from Highlands Computer Services, 14422 S.E. 132nd, Renton, WA 98055; phone: (206) 228-6691. Price: $20.

MCAT2 provides help to those of us who can't ever seem to remember which diskette a program is on. It creates a master catalog of programs on both DOS 3.2 and 3.3 diskettes. A typical entry would look like this:

254S *A HELLO

The 254 is the volume number, the "S" is any single special character supplied by the user, and the "*A HELLO" the reader already knows.

MCAT2 entries can be sorted either by volume or by name. With 48K, over a thousand entries can be entered and sorted.

The menu-driven program is easy to use. Option "O" allows you to set up your drive slot and printer slot, and enter any special characters (defaulting to "-") that your printer might require. Besides ADDing a disk's catalog, you can also DELETE and REPLACE a disk's catalog. MCAT2 allows you to print your master catalog in two formats, narrow and wide; but for the wide version, your printer will have to handle at least 105 columns.

The utility worked very well, without any obvious bugs. Get it for a friend for Christmas—one of those friends who makes rash New Year's resolutions!

Roger Davis

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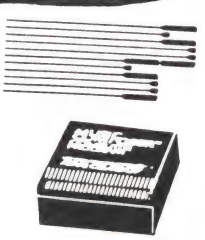

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BOOK REVIEWS

COMPUTER GRAPHICS PRIMER

Computer Graphics Primer, by Mitchell Waite (Howard H. Sams & Co., Indianapolis, 1979, $12.95).

In Computer Graphics Primer, Mitchell Waite acquaints the beginning home computer user with computer graphics, using examples for the Apple II.

Waite begins with a survey of computer graphics applications in use today. Chapter 2 covers, in understandable terms, a number of different concepts, including vector vs. bit-mapped graphics, character generators, memory partitioning, color, and graphics/text formatting. Simple circuit block diagrams demonstrate basic hardware concepts. Fifteen brief product profiles of graphics systems are included with photographs. Though somewhat dated (1979), they still provide very valuable information for comparison with current systems.

The remainder of the 184-page book teaches Applesoft hi-res graphics. Equation plotting, shape tables, rotation, magnification, and color are demonstrated. A simple "pong" style arcade game and an animation demo provide adequate examples.

The book may be criticized because it in many ways covers the same material found in the Applesoft manuals. But, in reality, most of the information does not overlap. A second objection may be the price: $12.95 for a 184-page book, and a paperback at that. But, in defense, it does contain many pictures, some are in color, and these can't be cheap. Finally, it does not go far enough. Anyone with prior graphics experience or desiring knowledge of 3-D techniques or full gray scale displays should seek a more advanced text. For example, Waite doesn't mention the tradeoff of spatial resolution for contrast resolution with dithering. (How else can one cram 20K of image information into an 8K mapped screen image?) But in defense, it is a "primer".

Waite has provided an excellent introduction to graphic techniques for the novice computer user. It is particularly useful to the Apple user because of its reliance on Applesoft software examples.

Rob Lufkin

TWO NEW BOOKS ON PROGRAMMING

Apple Machine Language, by Don and Kurt Inman (Reston Publishing Co., Reston, VA, 1981).
Pascal Programming for the Apple, by T. G. Lewis (Reston Publishing Co., Reston, VA, 1981).

Reston Publishing, a subsidiary of Prentice-Hall, has recently issued two new books which will be of interest to many beginning programmers: Don and Kurt Inman's *Apple Machine Language* and T.G. *Lewis's Pascal Programming for the Apple.*

Apple Machine Language assumes that the user will have a regular Apple II (not the Plus machine). However, many of the lessons can be done on an Apple II Plus. Apple Machine Language is strictly a book for people with no knowlege of machine language. And for beginners, it is an excellent introduction. The authors approach the teaching of machine language

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through BASIC. Only a very limited knowledge of BASIC is assumed. In other words, they first show how to do something in BASIC (e.g., draw a line on the CRT) and then show how to do it with pokes. Finally, they do it with op codes.

Pascal Programming for the Apple introduces the user to the UCSD Pascal system, not just to Pascal programming. Thus, the student learns how to use the editor, filer, and compiler as well as the Pascal language.

Both books provide chapter summaries and review questions. With diligence, a beginner could learn a great deal from either book.

Clint Summers

THE BOOK UPDATED

Jeff Stanton's impressive 68-page update continues in the same mode as the previous edition of The Book, reviewed in APPLESAUCE 2.4, and now includes a review of new hardware for the Apple II. Besides evaluating recent games and educational and business software, this issue surveys CP/M word processors and FORTH systems. 16K cards and 80-column cards are also reviewed. And these are real reviews, not re-worked press releases. (There are lies, damn lies, and press releases!)

In my review of The Book in APPLESAUCE 2.4, I stated that anyone expanding their Apple's utility with expensive software would do well to read the reviews in THE BOOK. This statement is even more accurate now that hardware reviews are included.

Ralph White

COMING: NEW BOOK EXPLAINING APPLE II DOS

In the next issue of Applesauce, we hope to review what appears to be an excellent 176-page book titled *Beneath Apple DOS,* by Don Worth and Pieter Lechner, and available from Quality Software, 6660 Reseda Blvd, Suite 105, Reseda, CA 91335, for $19.95. Original Apple Corps members know Don from the

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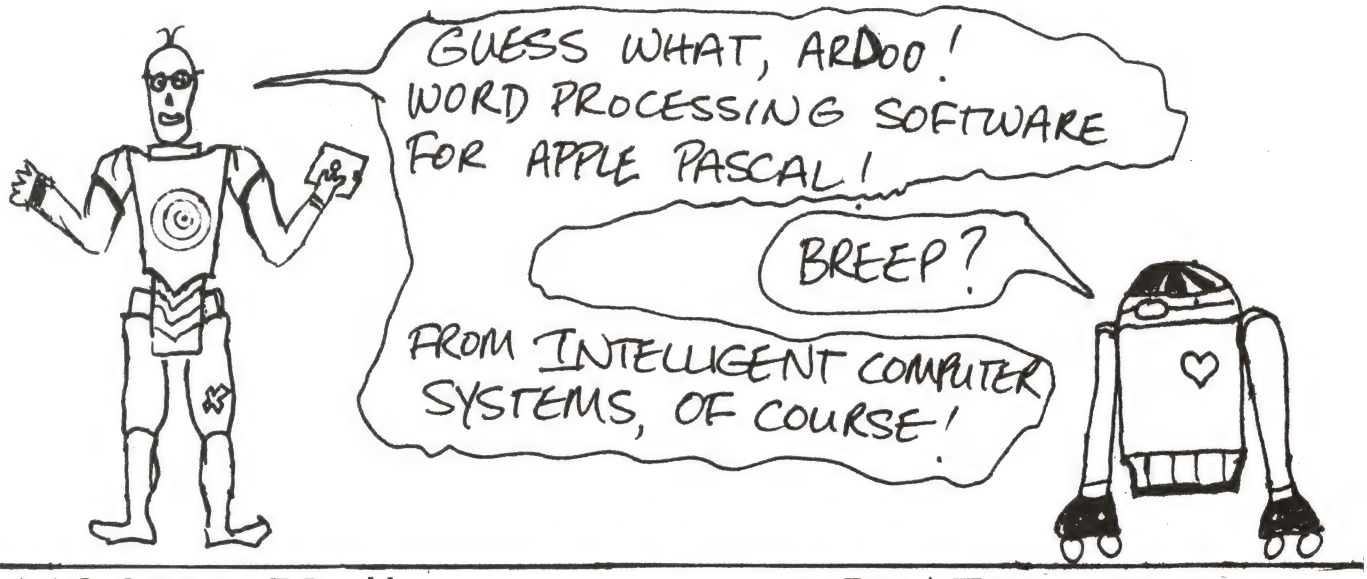

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advanced assembly language class he teaches. Your editor knows him as a systems programmer and colleague for many years at UCLA.

A brief glance at the book shows it to cover both the structure and the use of the various Apple DOS's. The Appendices contain five useful programs and a discussion of protection schemes. It appears to be a very welcome and important addition to the Apple library.

THE BEST OF CIDER PRESS 1980

For the amateur programmer, one of the best buys in the Apple orchard is the slim 115-page volume titled The Best of Cider Press. It is full of short, interesting articles and useful programs. It contains a 22-page chapter on DOS and a 35-page section on Pascal. One very interesting feature (which has since been reprinted in APPLE ORCHARD) is titled "Don't overload your Apple". It indicates the drain caused by most common peripheral cards.

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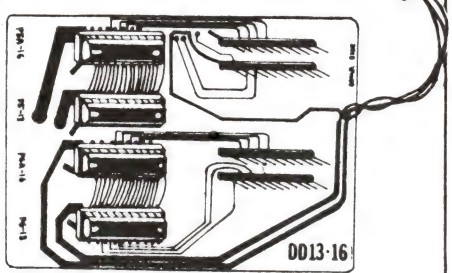

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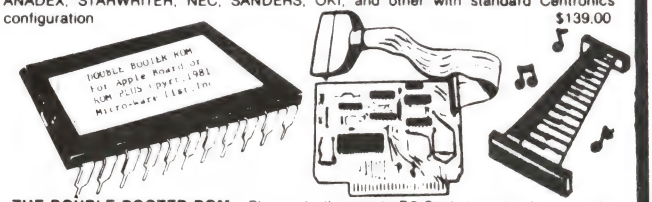

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THANKS

I would like to thank the many authors and reviewers who helped with this issue of APPLESAUCE. The list of reviewers and other assistants includes Joel Amromin, Dan DuBois, Phil Ender, Dave Gordon, George Guffey, Bill Ho, Stu Levine, Lou Rivas, and many others. Many thanks!

APPLESAUCE is a club magazine and cannot afford to purchase software, hardware, and books for review. I would like to thank the following companies for their generous cooperation in supplying materials to APPLESAUCE.

Nikki Hardin, Reston Publishing, for books to review

Denise E.M. Enrose, also for books to review

Lou Long, Stoneware Products, for a copy of DB MASTER for review

Howard Software Services, for the TAX PREPARER for review

Software Publishing Corporation for a copy of their PFS:REPORT for review, and

Southwestern Data Systems for Z-TERM and ASCII EXPRESS II for review.

The Los Angeles TIMES was very kind in allowing us to reprint, without charge, Kay Mills' article.

Earl Rand
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3.3	Monday 9 March	Friday 20 March
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3.4	Monday 17 May	Friday 28 May
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